Institute for Telecommunication Sciences and Aeronomy
(Central Radio Propagation Laboratory)

IONOSPHERIC PREDICTIONS

for March 1966

IMPORTANT NOTICE

SEE INTRODUCTION PAGE

TB 11-499-36/TO 31-3-28

U.S. DEPARTMENT of COMMERCE
Environmental Science Services Administration
Number 36 / Issued December 1965

U.S. DEPARTMENT OF COMMERCE
John T. Connor, Secretary

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
R. M. White, Administrator

Institute for Telecommunication Sciences and Aeronomy
(Formerly Central Radio Propagation Laboratory)

Ionospheric Predictions

for March 1966

Number 36

Issued

December 1965

These Ionospheric Predictions are issued monthly as an aid in determining the best sky-wave frequencies over any transmission path, at any time of day, for average conditions for the month. Issued three months in advance, each issue provides tables of numerical coefficients that define the functions describing the predicted worldwide distribution of foF2 and M(3000)F2 and maps for each even hour of universal time of MUF(Zero)F2 and MUF(4000)F2.

NOTE: Department of Defense personnel see back cover.

Use of funds for printing this publication approved by the Director of the Bureau of the Budget (June 19, 1961).

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402. Price 25 cents.

Annual subscription (12 issues) $2.50 (75 cents additional for foreign mailing).

ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

The Environmental Science Services Administration came into being on July 13, 1965, in accordance with Presidential Reorganization Plan No. 2 of 1965. It represents a merger of the U.S. Weather Bureau, the U.S. Coast and Geodetic Survey, each of which were separate Bureaus of the Department of Commerce, and the Central Radio Propagation Laboratory, formerly part of the National Bureau of Standards. ESSA brings together into one organization all the scientific and services activities in the Department having to do with man's physical environment and with telecommunications. The long range research activities of ESSA are organized in the Institutes for Environmental Research, covering telecommunications, aeronomy, atmospheric science, earth science, and oceanography. One of these is the Institute for Telecommunication Sciences and Aeronomy, the new name for the former Central Radio Propagation Laboratory.

NOTICE

TRIAL PERIOD FOR POLAR MAPS EXTENDED

The trial period for the polar prediction maps has been extended six months in order to permit more time to evaluate their utility. Some favorable comments have been received, but the response has been insufficient to justify the expense and effort required to publish them. Therefore, please send your comments as soon as possible if you wish these to continue.

ANNOUNCEMENT OF PUBLICATION OF NBS MONOGRAPH 80

IONOSPHERIC RADIO PROPAGATION

By Kenneth Davies of the Central Radio Propagation Laboratory, Boulder, Colorado.
(Now the Institute for Telecommunication Sciences and Aeronomy of the Environmental Science Services Administration.)

This new textbook provides an authoritative and comprehensive digest of current information on the ionosphere. Emphasis is placed on the physics of the ionosphere and theoretical developments required for an understanding of ionospheric radio propagation.

Orders, accompanied by $2.75 remittance, should be sent to: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

INTRODUCTION

Tables 1 and 2, presenting predicted coefficients defining the numerical map functions for the worldwide variation of foF2 and M(3000)F2, provide the basic prediction or F2-layer propagation. With additional auxiliary information, these coefficients may be used as input data for electronic computer programs solving specific high-frequency propagation problems. The graphical maps, which are derived from the basic predictions, are provided for those unable to make use of an electronic computer. Instructions for use of these maps, figures 1 through 24, may be found in National Bureau of Standards Handbook 90, "Handbook for CRPL Ionospheric Predictions Based on Numerical Methods of Mapping," which also includes required additional data, nomographs and graphical aids, and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C., 20402, price 40 cents. The predicted sunspot number used for this month is shown in table A, which also lists previous observed and predicted Zurich smoothed relative sunspot numbers. Figure A shows the recent trend of solar activity, with both predicted and observed Zurich smoothed relative sunspot numbers.

The basic numerical mapping equations, their interpretation, and methods of using numerical maps are described in papers by W. B. Jones and R. M Gallet, "The Representation of Diurnal and Geographic Variations of Ionospheric Data by Numerical Mapping," vol. 66D, No. 4, July-Aug. 1962, pages 419-438, and "Methods for Applying Numerical Maps of Ionospheric Characteristics," vol. 66D, No. 6, Nov.-Dec. 1962, pages 649-662, both in the Journal of Research of the National Bureau of Standards, Section D. Radio Propagation The predicted numerical map coefficients of tables 1 and 2 may be purchased in the form of a tested set of punched cards. Write to the Prediction Services Section, Institute for Telecommunication Sciences and Aeronomy, Environmental Science Services Administration, Boulder, Colorado, 80301, to arrange for purchase of the punched cards, and for information and advice on the application of computer methods and numerical prediction maps to specific propagation problems.

Members of the U.S. Army, Navy, or Air Force desiring Handbook 90 and the monthly issues of Ionospheric Prediction should send requests to the proper service address; for Navy: The Director, Naval Communications, Department of the Navy, Washington, D.C., 20350; for Air Force: Directorate of Command Control and Communications, Headquarters, United States Air Force, Washington, D.C., 20330. ATTN: AFOCCAA. Army personnel should requisition these through normal publication channels, and should refer to Handbook 90 as TM 11–499 and to the monthly ionospheric predictions as TB 11–499–( ), with the serial number of the desired monthly predictions booklet inserted in the parenthesis. (For example, for Ionospheric Predictions Number 36, issued December 1965 and containing predictions for March 1966, the Army number would be TB 11–499–(36).)

Information on the physics of the ionosphere and the theory of radio wave propagation, including such problems as absorption, field intensity, etc., may be found in National Bureau of Standards Monograph 80, "Ionospheric Radio Propagation," by Kenneth Davies, which may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402, price $2.75. Additional information on radio noise may be found in C.C.I.R. Report Number 322, "Revision of Atmospheric Noise Data," International Telecommunications Union, Geneva, 1964.

Reports to this Laboratory of experience with these predictions would be appreciated. Correspondence should be addressed to the Prediction Services Section, Institute for Telecommunication Sciences and Aeronomy, Environmental Science Services Administration, Boulder, Colorado, 80301.

Table A

Observed and Predicted Zurich Smoothed Relative Sunspot Numbers

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954	6	6	4	3	4	4	5	7	8	8	10	12
	(14)	(12)	(11)	(10)	(10)	(9)	(8)	(8)	(8)	(10)	(10)	(11)
1955	14	16	20	23	29	35	40	46	55	64	73	81
	(12)	(14)	(14)	(13)	(16)	(18)	(22)	(27)	(30)	(31)	(35)	(42)
1956	89	98	109	119	127	137	146	150	151	156	160	164
	(48)	(53)	(60)	(68)	(77)	(89)	(95)	(105)	(119)	(135)	(147)	(150)
1957	170	172	174	181	186	188	191	194	197	200	201	200
	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)
1958	199	201	201	197	191	187	185	185	184	182	181	180
	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)	(150)
1959	179	177	174	169	165	161	156	151	146	141	137	132
	(150)	(150)	(150)	(150)	(146)	(143)	(141)	(142)	(141)	(139)	(137)	(137)
1960	129	125	122	120	117	114	109	102	98	93	88	84
	(136)	(135)	(133)	(130)	(125)	(120)	(118)	(115)	(110)	(108)	(105)	(100)
1961	80	75	69	64	60	56	53	52	52	51	50	49
	(100)	(90)	(90)	(90)	(85)	(85)	(80)	(75)	(70)	(70)	(65)	(60)
1962	45	42	40	39	39	38	37	35	33	31	30	30
	(60)	(50)	(48)	(45)	(42)	(37)	(34)	(31)	(29)	(28)	(27)	(34)
1963	29	30	30	29	29	28	28	27	27	26	24	21
	(31)	(28)	(26)	(25)	(25)	(25)	(23)	(21)	(20)	(18)	(18)	(17)
1964	20	18	15	13	11	10	10	10	10	10	10	11
	(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17.5)	(17.3)	(17.0)	(17.0)
1965	12	12	13									
	(15.0)	(16.0)	(16.0)	(16.0)	(15.0)	(17.0)	(21.0)	(28.9)	(22.0)	(22.0)	(26.0)	(29.0)
1966												
	(33.0)	(37.2)	(40.4)*									

Note: Final numbers are listed through June 1964, the succeeding values being based on provisional data. The predicted numbers are in parentheses.

* Number used for predictions in this issue.

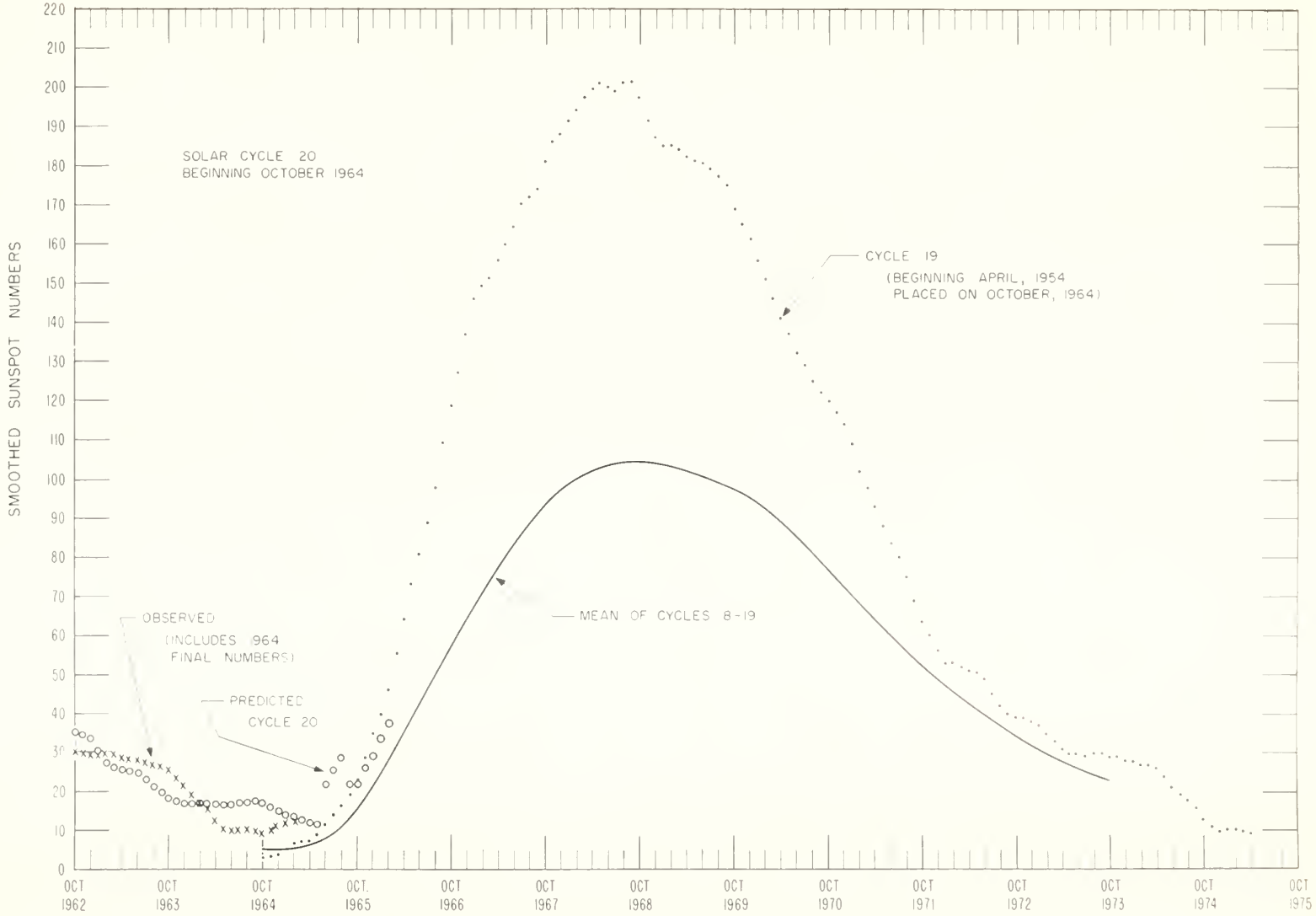

FIG. A PREDICTED AND OBSERVED SUNSPOT NUMBERS

TABLE I

TIME VARIATION

GEOGRAPHICAL VARIATION

Harmonic		0	1		2		3		4			
	K \ S	0	1	2	3	4	5	6	7	8		
I	0	8.6957341+000	2.5425211+000	1.5123616+000	-6.7342540-001	6.0278650-001	-3.4380474-001	-8.6964464-001	2.2230947-001	-2.3405124-001		
	1	-7.4873385-001	-1.1041058+000	-1.0733188+000	-4.5032316-001	-6.4209539-001	-1.1455482+000	-8.4619466-001	-8.3155537-002	-2.4135577-001		
	2	-2.7510993+000	-1.4564231+000	1.4410864+000	6.1384652+000	4.5669317+000	-1.7340402+000	-8.4216889+000	4.1249551-001	2.6124895+000		
	3	1.7364759+001	3.1426351+001	2.9640078+001	9.8490473+000	1.2648343+001	1.1573357+001	1.1150043+001	2.8412830+000	2.0337744+000		
	4	-3.4692042+001	-2.9101583+001	-7.8175041+001	-1.8944742+001	-4.4827272+001	2.0227967+001	1.9904484+001	-4.9085299+000	-1.6241732+001		
	5	-9.0564166+001	-1.9853496+002	-1.5617195+002	-4.7594374+001	-5.7223283+001	-4.2672288+001	-4.9858243+001	-1.8043442+001	-5.1194774+001		
	6	9.8213470+001	4.2143849+001	1.8982474+002	1.9421121+001	1.4759851+002	-7.4312667+001	-8.6711694+001	1.2925373+001	2.9422493+0		
	7	1.8808664+002	4.5593494+002	3.3304753+002	9.1317146+001	1.0420037+002	8.1511671+001	4.9210857+001	4.1275749+001	7.[illegible]		
	8	-1.0646518+002	-1.1264775+002	-2.4338357+002	3.7866256+000	-2.3582825+002	1.2515915+002	1.5832517+002	-4.3419482+0 0	-4.5554733+001		
	9	-1.7457392+002	-4.5227424+002	-3.1434341+002	-7.5423198+001	-8.7446934+001	-6.5587610+001	-9.0851028+001	-4.0034403+001	-3.0822262+000		
	10	4.4206269+001	5.4138838+001	1.6072038+002	-1.4393891+001	1.4381369+002	-9.8635803+001	-1.3342687+002	-8.9085299+000	1.5855335+001		
	11	6.0100693+001	1.7259483+002	1.0867999+002	2.2231120+001	2.6667801+001	1.9770242+001	3.1234285+001	1.4015054+00	-5.5543877-002		
	12	-2.8111454+000	-1.0276495+001	-4.4251485+001	8.4256284+000	-5.5973723+001	2.9647544+001	4.2607151+001	5.7477142+000	-1.1225174+001		
II	13	1.4081353-001	2.1948705-001	1.6228839-001	9.2223814-003	8.5861477-002	5.5386484-002	1.4405834-001	-5.4434943-002	3.4448195-002		
	14	6.9818757-002	-6.2266463-002	2.0188996-002	9.2401230-002	9.0294806-002	6.5019586-002	1.9001286-001	1.1859167-003	-4.3553194-002		
	15	4.1984037-001	-1.0724874+000	-5.4141627-001	1.1200499+000	1.0433171+000	-1.5325955-001	1.0110351-001	2.2800101-001	-4.4807411-001		
	16	-3.7089644+000	-4.7402498+000	-6.8089722+000	-2.7097877+000	-1.5417535+000	-1.5771076+000	-2.1600247+000	1.0362911-001	-9.5317928-001		
	17	-9.8266218+000	-1.3988066+001	-6.7449067+000	1.2136329+000	-1.2039639+000	-4.2396945-001	-4.2368586+000	1.5650016+000	-1.4830511+000		
	18	-6.3635749-001	-2.3713242+000	-7.1791301+000	-7.8492978-002	-4.4197274+000	7.7835899-003	-5.3201434+000	4.5516789-001	2.0412431-001		
	19	1.3898370+001	8.4515003+000	5.8968025+000	-1.5537643+001	-1.0077291+001	4.5402680+000	-3.8508097+000	-3.9992023+000	9.0846879+000		
	20	1.2624247+002	1.1247941+002	7.2654839+001	2.9223462+001	3.1300836+001	1.5793514+001	2.7357814+001	2.4705412+000	1.0473976+001		
	21	1.2052358+002	1.5444503+002	9.4057887+001	-2.8139261+001	1.0101848+001	-1.4214716+001	3.2530411+001	-1.1378882+001	2.2587064+001		
	22	-4.7693096+001	1.4249173+001	1.0558197+002	-2.6694471+001	3.6787718+001	-5.5458899+000	5.8196341+001	-6.0772808+000	6.9701396+001		
	23	-1.1544473+002	-4.5992446+001	-4.4233790+001	7.0088472+001	4.3315214+001	-2.2194643+001	2.3084907+001	1.6582238+001	-5.0366869+001		
	24	-6.9176800+002	-7.8492265+002	-2.5187191+002	-1.1265709+002	-1.8524986+002	-5.0723665+001	-1.2785497+002	-1.3267849+001	-4.4755558+001		
	25	-5.5261465+002	-8.5774107+002	-5.0293402+001	1.6402297+002	-6.1294057+001	1.0104016+002	-1.1553112+002	3.3086892+001	-9.4119311+001		
	26	2.7504843+002	-1.6941027+002	-5.0241571+002	1.8214554+002	-1.2943162+002	3.6045158+001	-2.4685973+002	3.0137451+001	-6.6494393+000		
	27	3.0441660+002	1.3941801+002	1.2660128+002	-1.5831832+002	-9.2149267+001	4.5085551+001	-4.7396328+001	-2.6784838+001	1.1457162+002		
	28	1.5375759+003	1.2238655+003	3.8488774+002	1.4903470+002	3.8193436+002	1.1394137+002	2.7077470+002	2.1304498+001	8.5300283+001		
	29	1.1655342+003	1.7445257+003	-7.6401761-002	-3.8240100+002	1.6446095+002	-2.4773339-002	2.1044817+002	-4.5443884+001	1.7485943+002		
	30	-5.8870353+002	3.9494481+002	1.0357106+003	-4.5009480+002	2.2480185+002	-4.7974565+001	4.8555432+002	-7.1849059+001	1.7444772+001		
	31	-3.4578774+002	-1.8196949+002	-1.5327117+002	1.7874421+002	8.4649978+001	-3.4212134+001	3.8334363+001	1.7834421+001	-1.1524787+002		
	32	-1.5132563+004	-1.1353147+003	-2.6169876+002	-1.6674951+002	-4.0295858+002	-1.0554808+002	-2.6273321+002	-1.1419648+001	-7.8432405+001		
	33	-1.1324658+003	-1.7134011+003	4.6460999+001	3.8574850+002	-1.8515203+002	2.6104569+002	1.8942189+002	3.1197462+001	-1.6029064+002		
	34	5.5740194+002	-3.0147394+002	-4.6532404+002	4.7403000+002	-1.9231700+002	4.3199145+001	-4.4920743+002	7.9726747+001	-1.9948721+001		
	35	1.4496533+002	8.2711808+001	6.6567782+001	-7.8724023+001	-3.1372984+001	1.2155849+001	-9.6105563+000	-3.7759232+000	4.2800685+001		
	36	5.4605870+002	3.8951774+002	6.2765921+001	5.4536500+001	1.5804102+002	3.8326471+001	9.4740434+001	7.4324728+001	2.7447720+001		
	37	4.1042293+002	6.2422751+002	-2.3230245+001	-1.4033445+002	7.2423223+001	-1.0082927+002	6.5459001+001	-9.2074206+000	5.9354101+001		
	38	-1.9633208+002	4.4164144+001	3.3573480+002	-1.8223161+002	6.5479535+001	-3.5554786+001	1.5765648+002	-3.2704437+001	8.1154655+000		
III	39	1.7559964-001	-4.3139065-002	-1.8042122-001	6.0637535-002	1.2785909-003	-2.1963019-002	-5.7517412-003	3.7277909-003	-1.4144350-002		
	40	8.7178618-002	7.7684040-002	-1.9707139-001	-3.0765013-003	-4.7275945-002	2.6488064-002	7.4529194-002	4.5601476-003	-2.4276256-002		
	41	1.2410888+000	5.8526112-001	-1.2016823+000	-4.0693007-001	4.4551872-001	-2.3495692-001	-2.3607088-001	8.7634823-003	-1.0274102-001		
	42	3.5907507-001	1.2194247-001	-3.3496935-001	5.3777064-001	1.3941693-001	-4.5644282-002	-8.4566860-003	-1.3388711-002	1.1103210-002		
	43	9.8158207-002	2.0148836+000	2.1650963+000	-7.7235415-001	4.8056495-001	4.9705119-001	-8.8616827-003	2.0354584-002	3.1347174-002		
	44	-1.0126206+000	-7.5912558-001	5.9853904+000	-7.5886338-001	1.0095783+000	2.7491362+000	-2.5570254-001	-4.4524724-002	1.5771044-001		
	45	-2.1032953+000	8.2647943-003	4.0817900+000	2.4492086+000	-1.2126746+000	1.3232944+000	3.9296468-001		1.4472073-001		
	46		1.2376244+000	2.3726532+000	-1.3279299+000	-3.2943933-001	2.1084967-002					
	47		-7.9405870+000	-6.4125316+000	1.0379736+000	-7.4327387-001	-1.6501517+000					
	48		4.5047507-001	-1.8951110+001	1.7441234+000	-3.3096850+000	-1.5272758+000					
	49		-1.7023741+000	-3.0579888+000	-2.2922774+000	8.3019322-001	-1.4169287+000					
	50		-1.6212342+000	-3.0994026+000	3.5752944-001	1.0696567-001	-8.7005909-003					
	51		1.2326533+000	4.8486306+000	-7.2664020-001	-2.7731788-001	7.6495119-001					
	52			1.6146497-001		2.6293104+000	1.5356367+000					

GEOGRAPHICAL VARIATION

Harmonic		5		6		7		8	
	K \ S	9	10	11	12	13	14	15	16
I	0	1.5976357-001	1.9994528-001	-1.1422481-001	8.3435190-002	-8.6927987-002	-8.9774464-002	7.1518338-002	-4.6734405-002
	1	4.3679629-002	2.1254575-004	2.6837036-002	6.4673692-003	-2.8701449-002	-9.9351747-003	-3.1797453-003	-3.6720452-002
	2	-1.6915574-001	-2.6711103-001	1.3408475-001	-1.4209407-001	1.7721972-001	1.3177734-001	-8.1987449-002	1.0549869-001
	3	-3.8248140-002	-7.9453361-003	-3.1087992-002	-5.7086596-003	3.1270841-002	1.4347821-002	-3.2656436-003	3.6050385-002
	4	1.5847603-002	7.8845718-002	-2.4679389-002	7.7533658-002	-8.9927798-002	-4.2498102-002	1.6723742-002	-6.5253504-002

I - Main latitudinal variation. Mixed latitudinal and longitudinal variation: II - First order in longitude, III - Second order in longitude

Notation: For each entry the number given by the first eight digits and sign is multiplied by the power of ten defined by the last three digits and sign.

PREDICTED COEFFICIENTS D_{sK} DEFINING THE FUNCTION $\Gamma(\lambda,\theta,t)$ FOR MONTHLY MEDIAN f_o F2 (Mc/s)

MARCH 1966

TABLE 2

TIME VARIATION

GEOGRAPHICAL VARIATION

Harmonic		0	1		2		3	
	K \ S	0	1	2	3	4	5	6
I	0	2.9296001+000	-1.8691886-001	-2.4660204-001	5.0406565-002	-9.1655060-002	4.2023038-002	-5.2055159-002
	1	3.4519085-002	-4.9155344-002	-2.2521759-001	1.6788647-001	-2.7160667-002	-9.1853138-002	3.3615439-002
	2	1.9756664+000	1.4087574+000	2.5657193+000	-3.4954567-001	-2.1792380-001	-9.8662341-001	-1.4778895-001
	3	1.7890236-001	4.2194083-001	1.4421194+000	-8.3634326-001	4.4694253-003	3.6401075-001	-2.0896818-001
	4	-6.2571265+000	-3.4234424+000	-6.0859478+000	6.8615206-001	7.9333152-001	3.7275875+000	7.8411308-001
	5	-6.3262825-001	-4.2045410-001	-2.3954103+000	1.2880453+000	7.8693653-002	-4.5329360-001	3.7503402-001
	6	7.2631347+000	3.7343765+000	6.1993494+000	-5.6636971-001	-9.2405813-001	-4.9468704+000	-1.2160921+000
	7	4.0401767-001	1.5794377-001	1.1717665+000	-6.0510758-001	-3.9434079-002	1.7306749-001	-2.1098544-001
	8	-2.8853090+000	-1.5295583+000	-2.3546395+000	2.1044332-001	4.1480978-001	2.1751409+000	6.1444671-001
II	9	-2.4781063-003	-3.2383541-003	3.9953537-002	-1.8125507-002	5.2325339-003	-6.1541503-004	4.8120252-003
	10	-5.2313227-002	3.7725571-003	1.5290368-002	-2.3411534-002	-1.5205001-002	2.9134967-002	-4.3656621-003
	11	5.5511341-002	-1.7543786-001	1.3496814-001	6.8116790-002	6.4360529-002	-6.0673545-003	-1.3184336-002
	12	-4.7336653-001	-5.5642601-001	-9.7081829-001	2.3259195-001	2.0799137-003	2.4616737-001	2.5010543-002
	13	-6.3548863-002	-2.4452623-001	-5.5591599-001	2.3503174-001	8.7190338-002	-1.1554458-002	4.9068037-002
	14	7.4288664-001	3.3947148-002	-3.0322434-002	3.7150350-001	1.5172680-001	-5.1452647-001	2.2501600-001
	15	4.9905912-002	1.2179558+000	-3.5741545-001	-7.3436372-001	-2.8206871-001	1.3848234-001	6.5982839-002
	16	3.2800244+000	3.3122832+000	5.9378578+000	-1.3704105+000	-2.5500453-001	-1.7868451+000	-2.8413605-001
	17	1.1299311+000	1.6301941+000	1.6680071+000	-1.0603482+000	-1.0081860+000	3.3129210-001	-4.2882731-001
	18	-3.3534884+000	4.1466283-001	2.7205511-002	-1.7099979+000	-1.1863330-001	2.3579551+000	-1.2356868+000
	19	-8.0033648-001	-2.5667430+000	2.3735332-001	1.6485460+000	5.7344862-001	-4.2694276-001	-4.6003246-002
	20	-5.9402417+000	-6.0007590+000	-1.0361921+001	2.5973358+000	6.4023966-001	3.4677665+000	6.1903842-001
	21	-2.5918462+000	-3.3702793+000	-1.4426617+000	1.5766753+000	2.5105665+000	-8.9886884-001	9.3356422-001
	22	5.5511495+000	-1.3441294+000	-4.2790146-001	2.9284680+000	-4.1686635-001	-3.7496119+000	2.2756898+000
	23	7.0909803-001	1.4998324+000	-4.9296370-003	-1.0463685+000	-3.6526568-001	3.5906289-001	4.8374831-003
	24	3.2997368+000	3.6859592+000	5.8873008+000	-1.5431415+000	-3.9342332-001	-2.0100883+000	-3.6059318-001
	25	1.7166788+000	2.1969884+000	3.7723319-001	-7.4846427-001	-1.5946022+000	5.7360355-001	-6.3972513-001
	26	-3.1021006+000	9.7751523-001	3.7224776-001	-1.6302542+000	4.2551944-001	1.9291016+000	-1.2733612+000
III	27	-2.7699078-002	-1.6484156-002	-1.0876060-002	-3.4314154-003	-1.1474428-002	5.3494556-003	-6.8795822-004
	28	-1.6654069-002	1.0854315-003	-1.3935058-003	5.3181849-003	4.2173071-003	3.3497134-003	5.7435683-003
	29	-8.8706767-002	-1.6252487-001	-1.5810624-001	6.3981679-002	4.2443001-005	1.7354220-002	-2.2759193-003
	30	1.0191140-002	-5.7084470-002	-1.9336353-002	3.6801300-002	-4.6567197-002	-3.5578062-003	3.5852473-002
	31	9.3899842-002	4.0572481-002	1.2089747-001	3.1042688-002	1.4805480-001		6.9637436-003
	32	5.5065467-002	6.9615541-002	-7.0098773-002	-1.9227033-001	-8.4075780-003		-1.9002635-002
	33	2.4564375-001	3.4212036-001	3.2558694-001	-9.1674477-002	-4.0401544-002		1.1446415-002
	34		1.7495468-001	9.1358114-003	-6.5622245-002	9.0303146-002		-8.0010748-002
	35			9.3669750-002	-3.4735470-002	-2.3401232-001		
	36				2.9411894-001			

GEOGRAPHICAL VARIATION

Harmonic		4		5		6	
	K \ S	7	8	9	10	11	12
I	0	3.6879185-002	2.7252523-003	1.2608024-002	3.7314647-002	-1.8476114-002	7.0270300-003
	1	7.0066072-003	-3.4665541-003	4.4831183-003	3.4014006-003	-1.1357336-002	5.1531414-004
	2	-2.4365213-002	3.7145458-003	-1.4618967-002	-3.0803852-002	1.6177041-002	-4.0462330-003
	3	-4.4532207-003				1.4342902-002	

I - Moin latitudinal variation Mixed latitudinal and longitudinal variation: II - First order in longitude, III - Second order in longitude.

Notation: For each entry the number given by the first eight digits and sign is multiplied by the power of ten defined by the lost three digits and sign.

PREDICTED COEFFICIENTS D_{SK} DEFINING THE FUNCTION $\Gamma(\lambda,\theta,t)$ FOR MONTHLY MEDIAN M(3000)F2

MARCH 1966

MARCH 1966 UT = 00

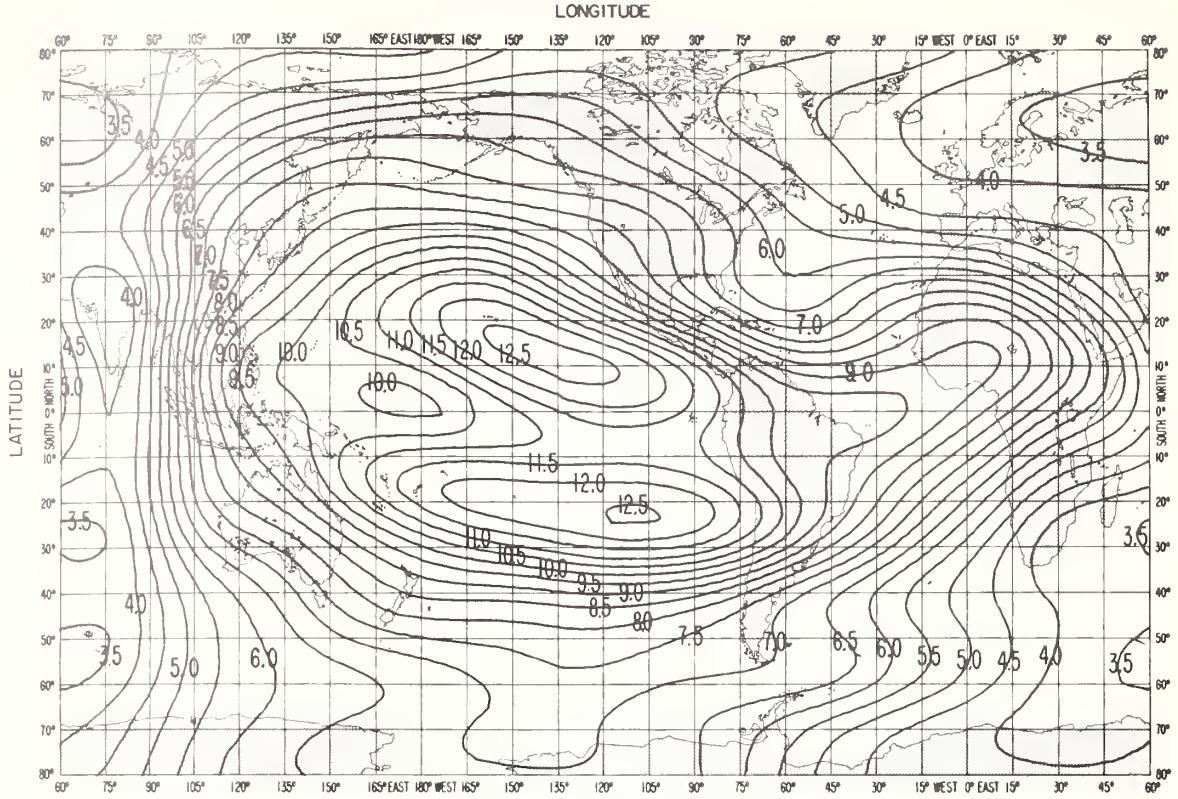

FIG. 1 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

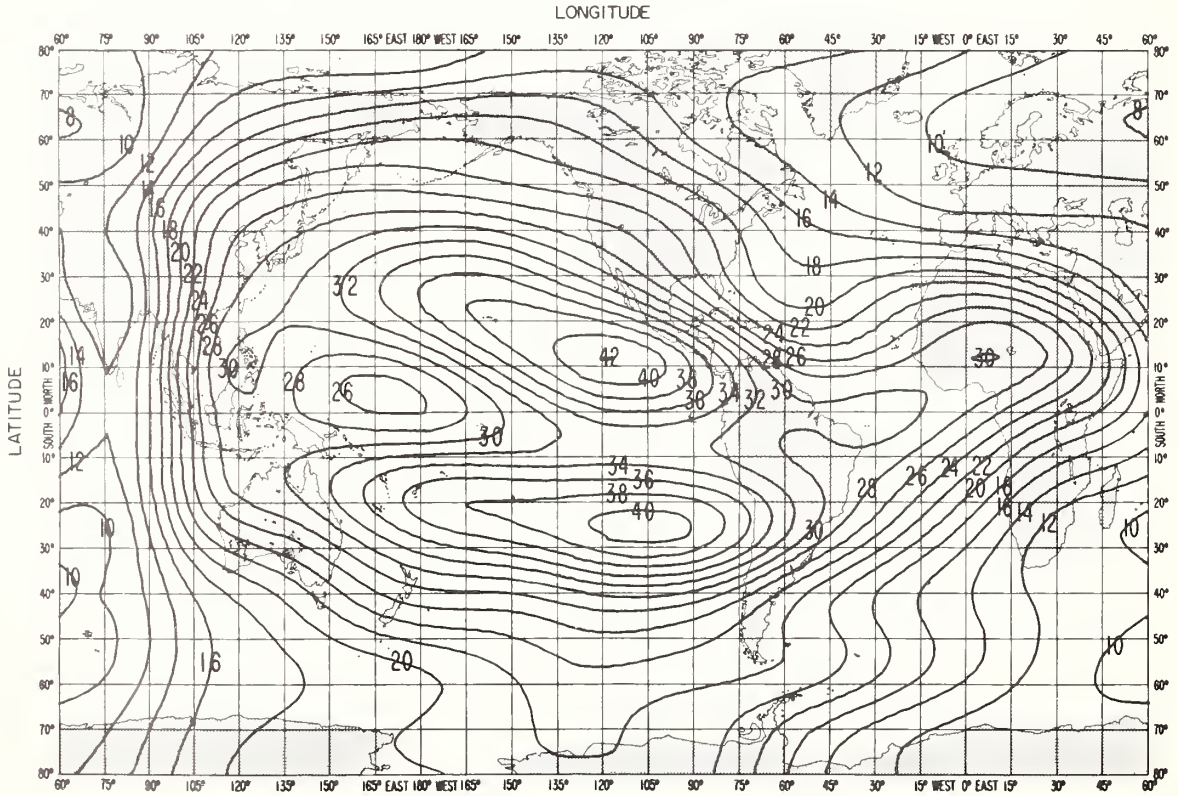

FIG. 1 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

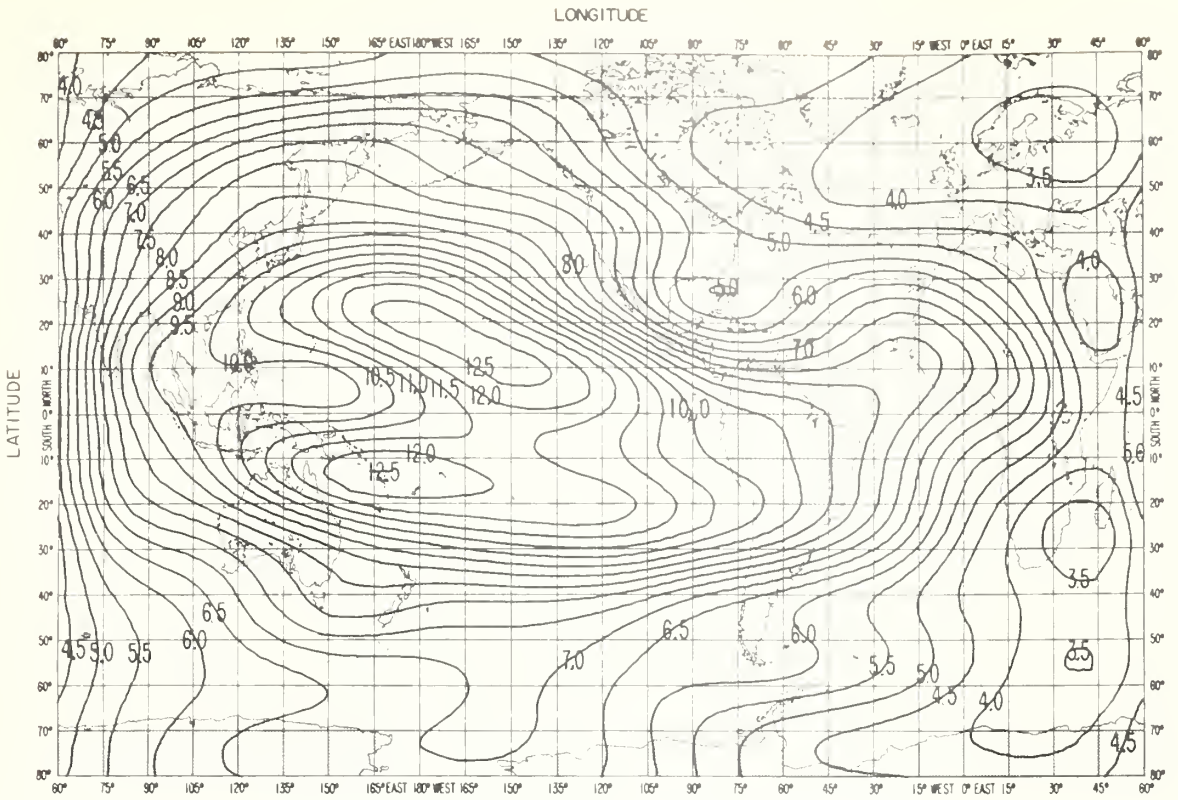

FIG. 2 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

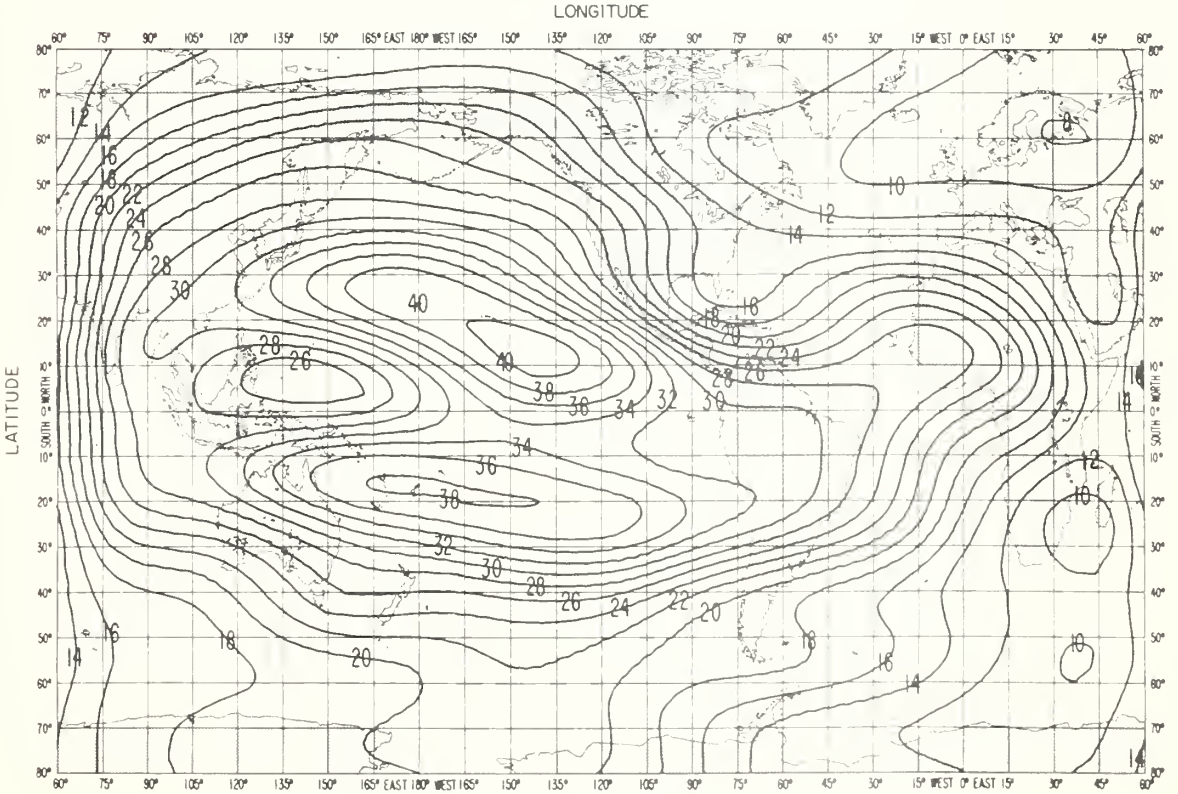

FIG. 2 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT = 04

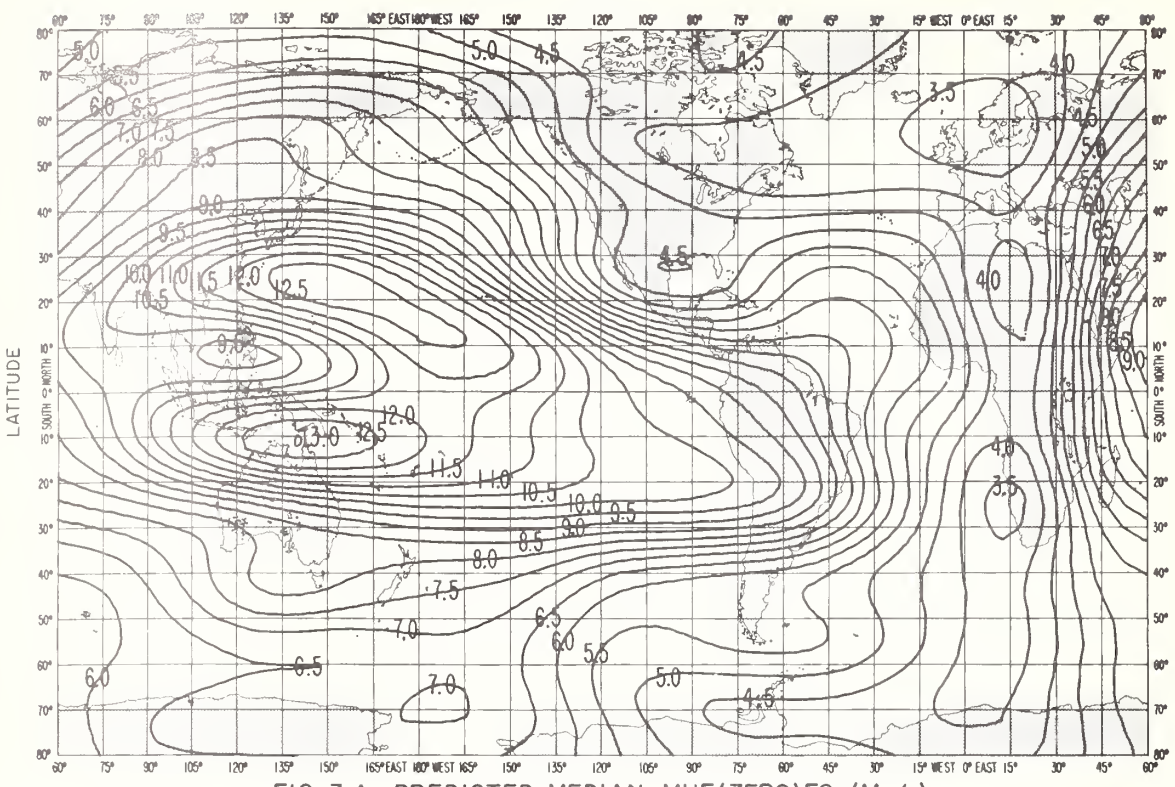

FIG. 3 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

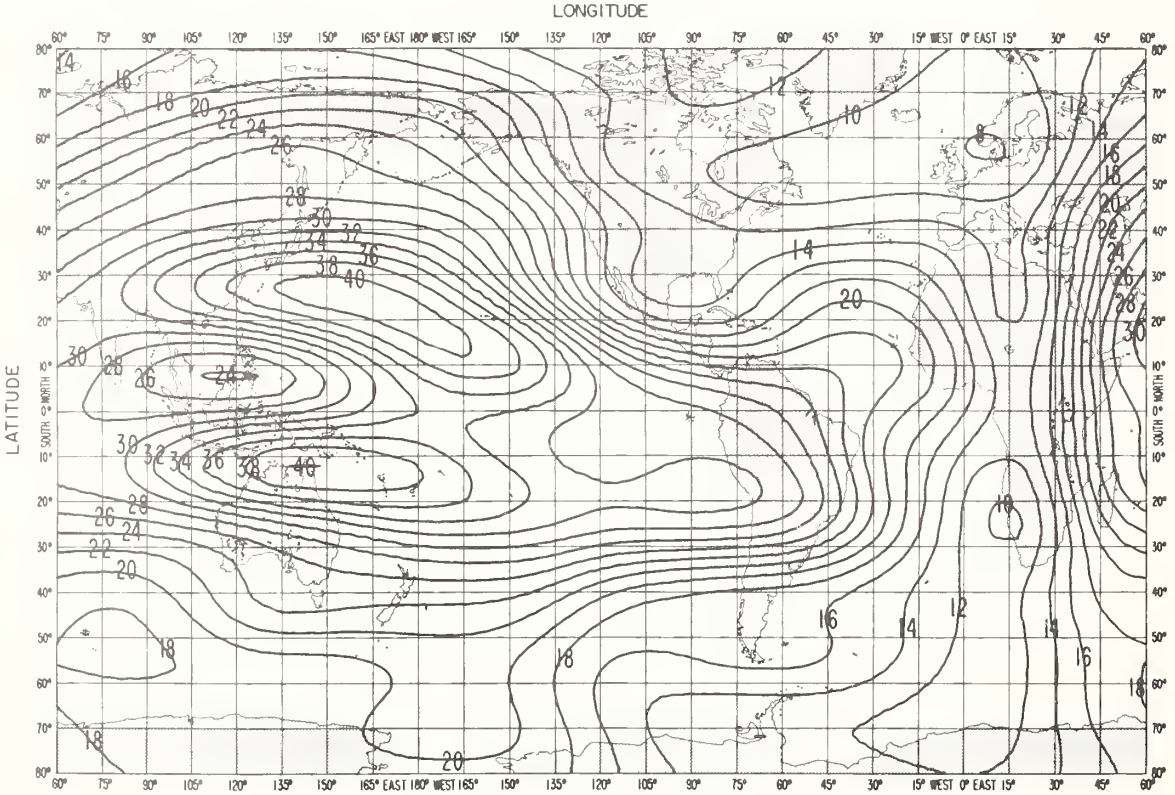

FIG. 3 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

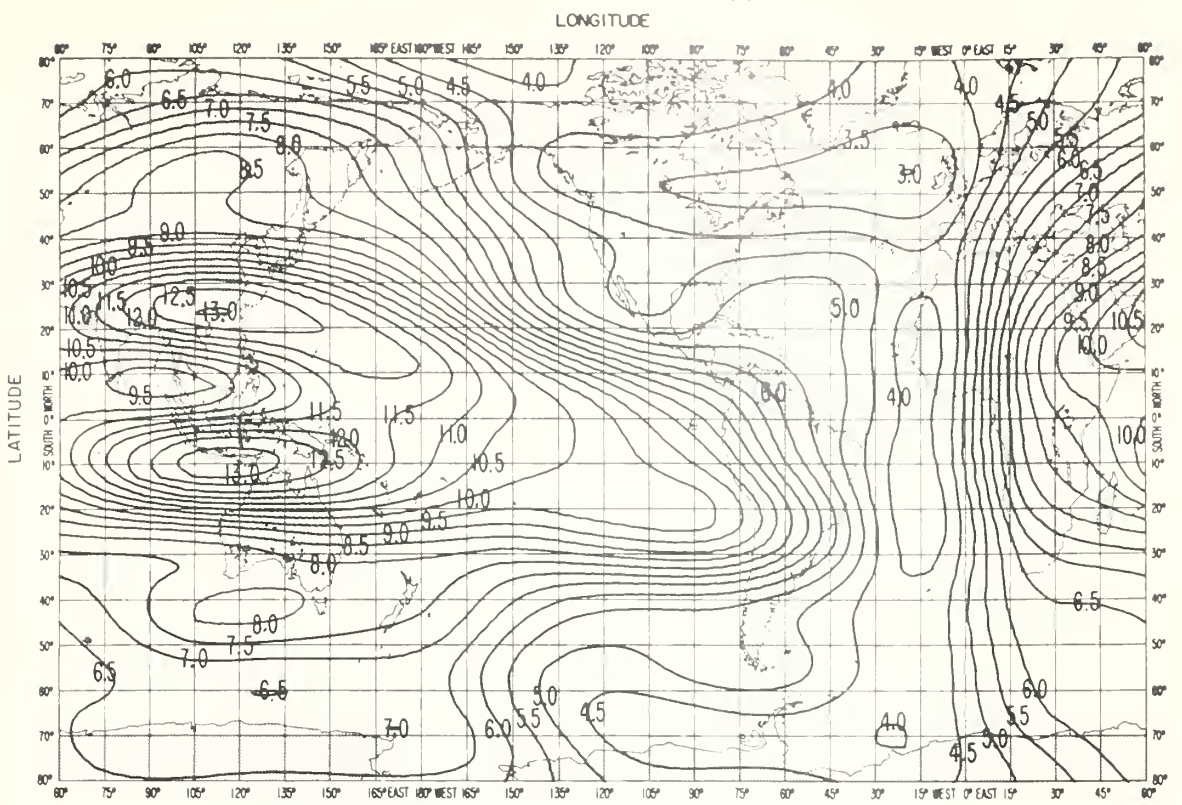

FIG. 4 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

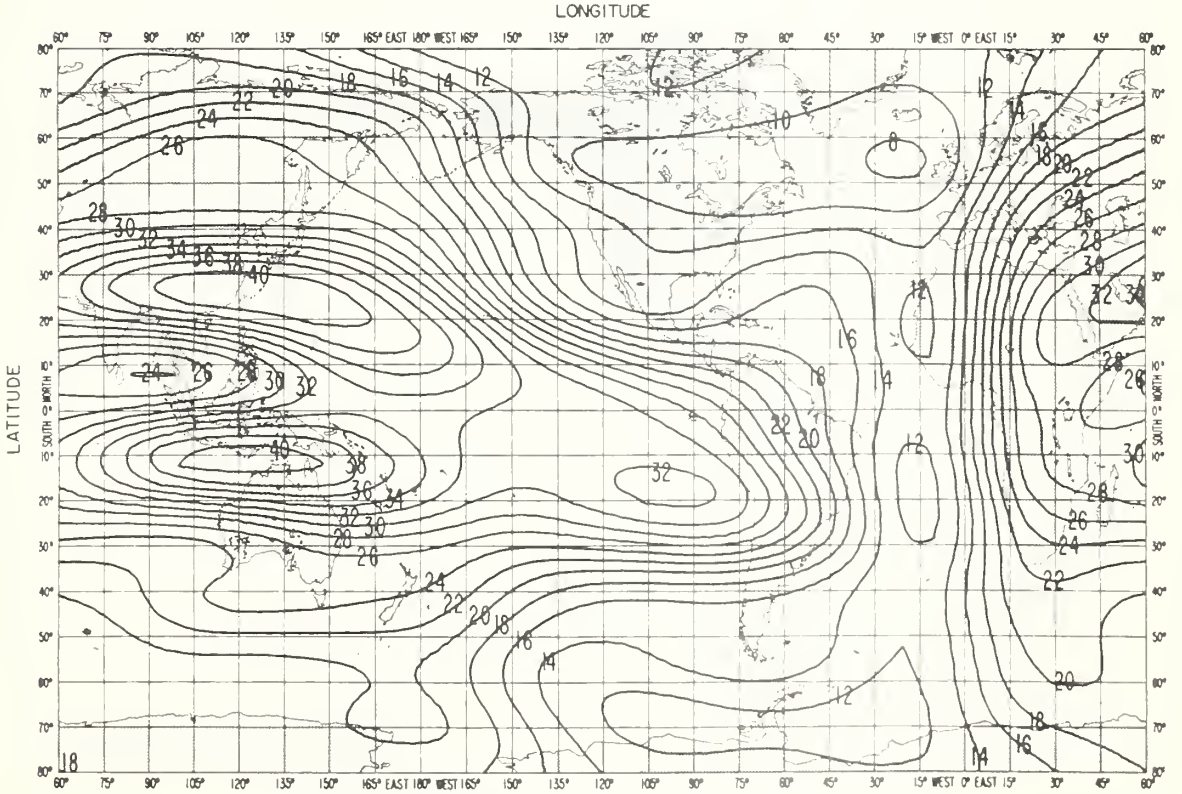

FIG. 4 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT = 08

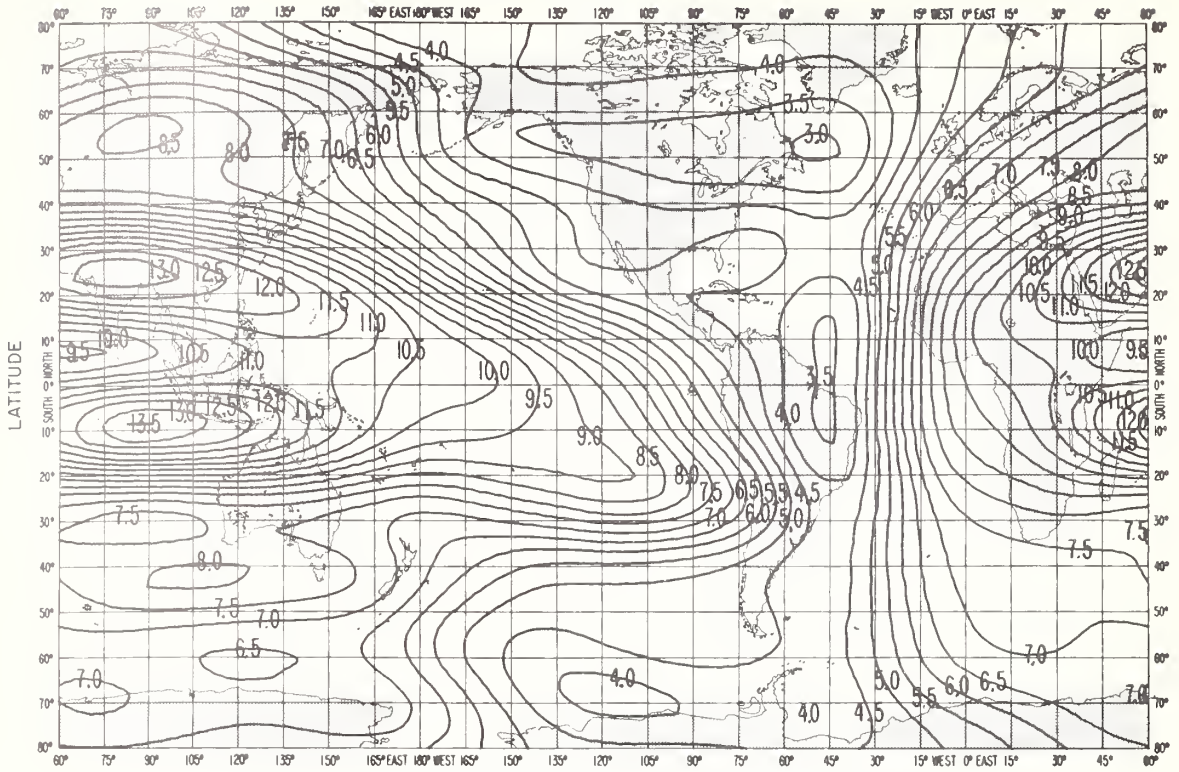

FIG. 5 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

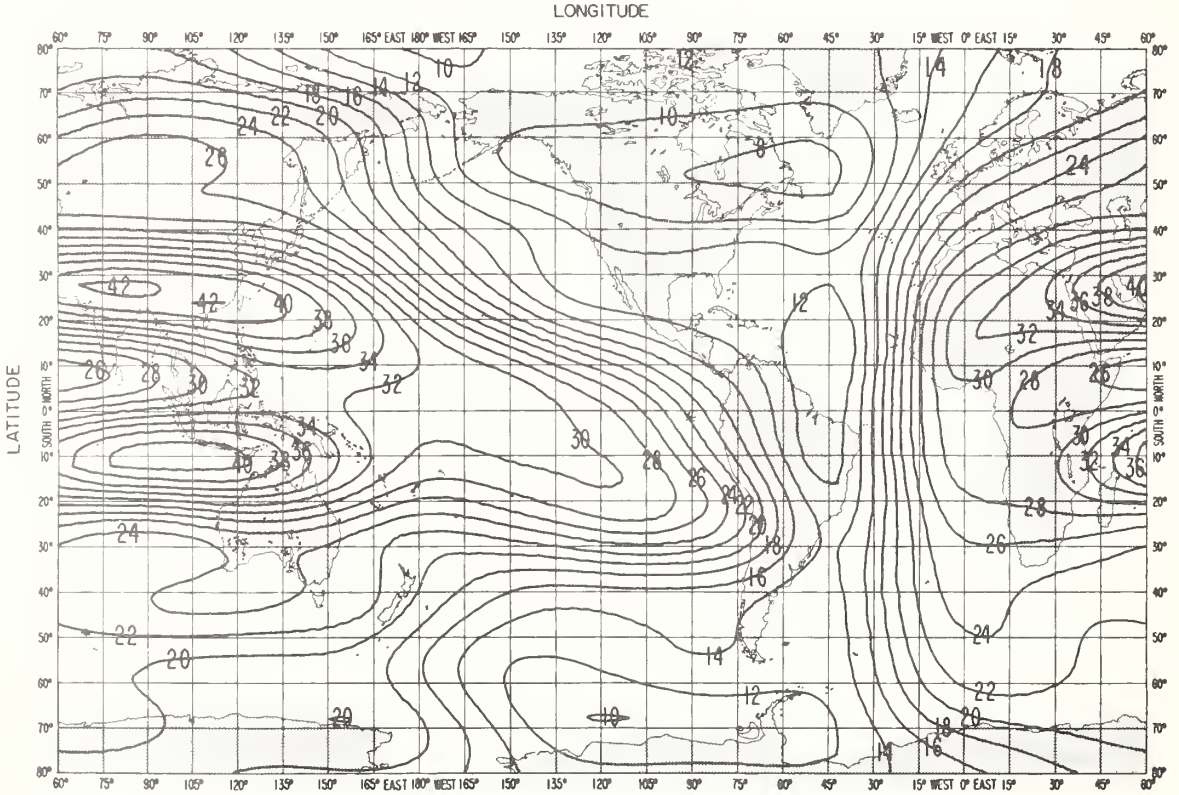

FIG. 5 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

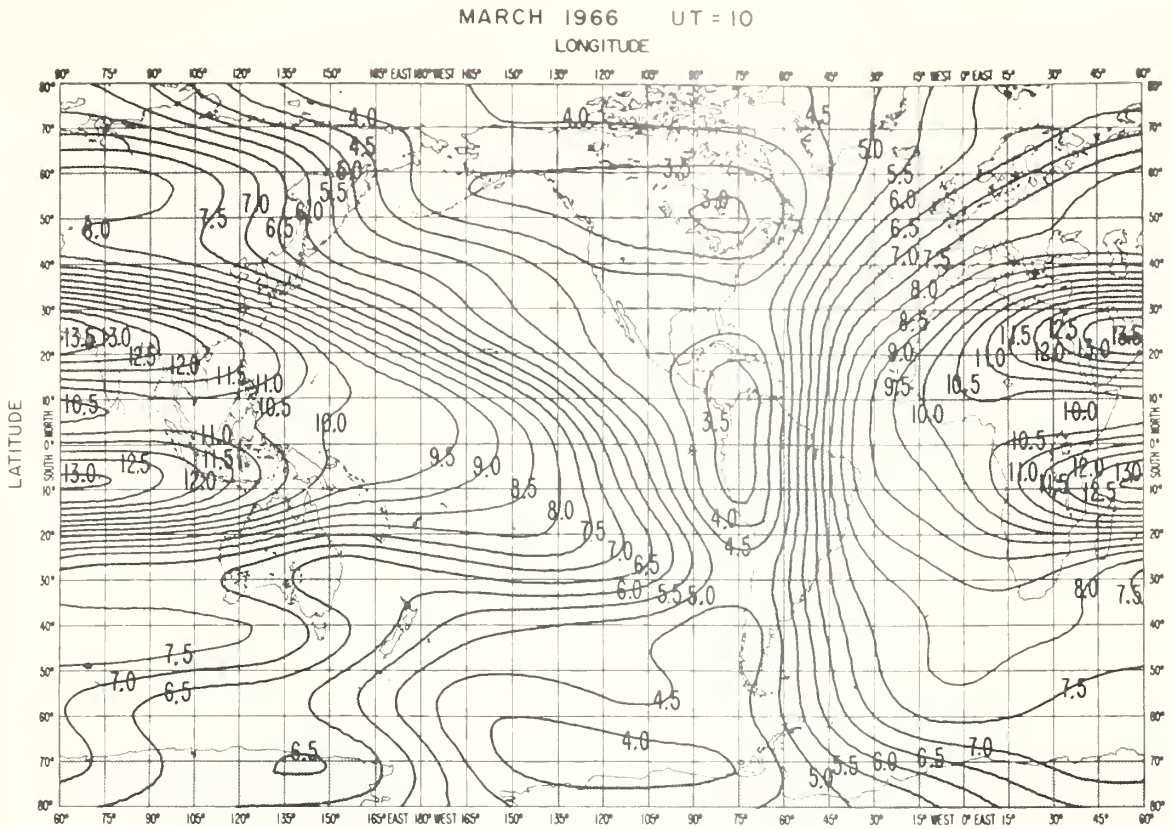

FIG. 6 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

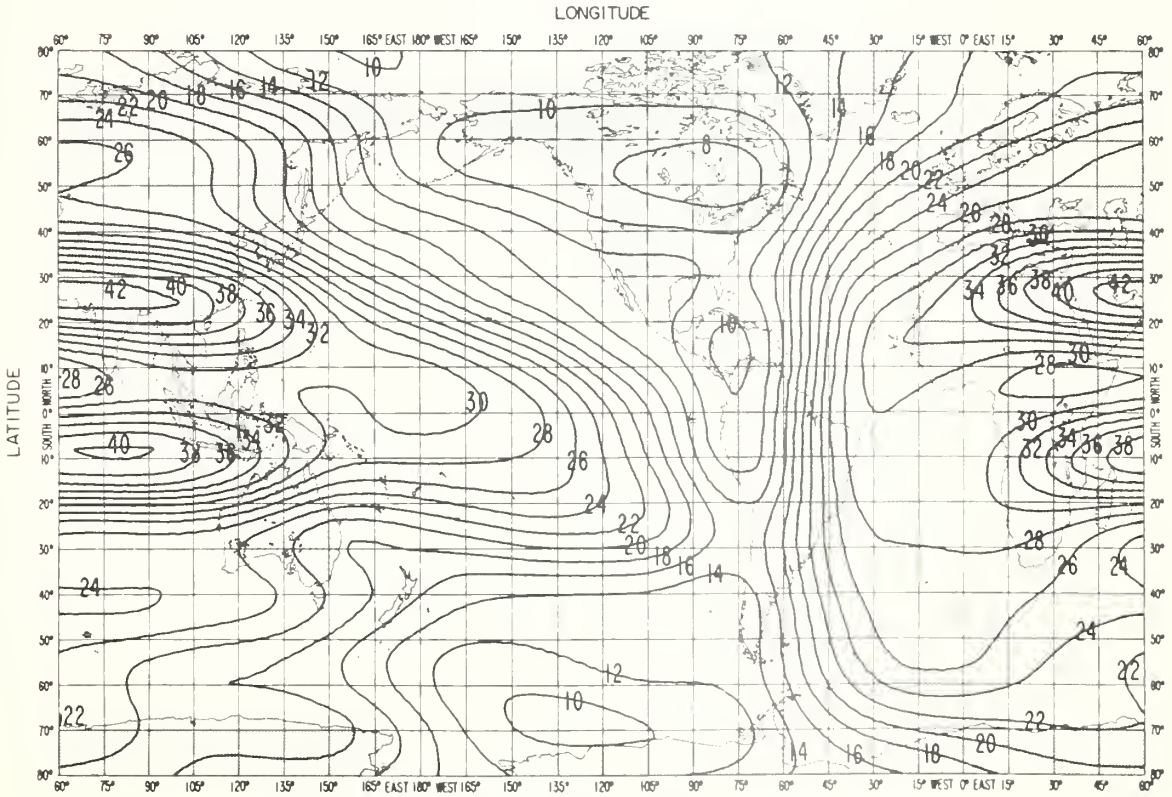

FIG. 6 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT = 12

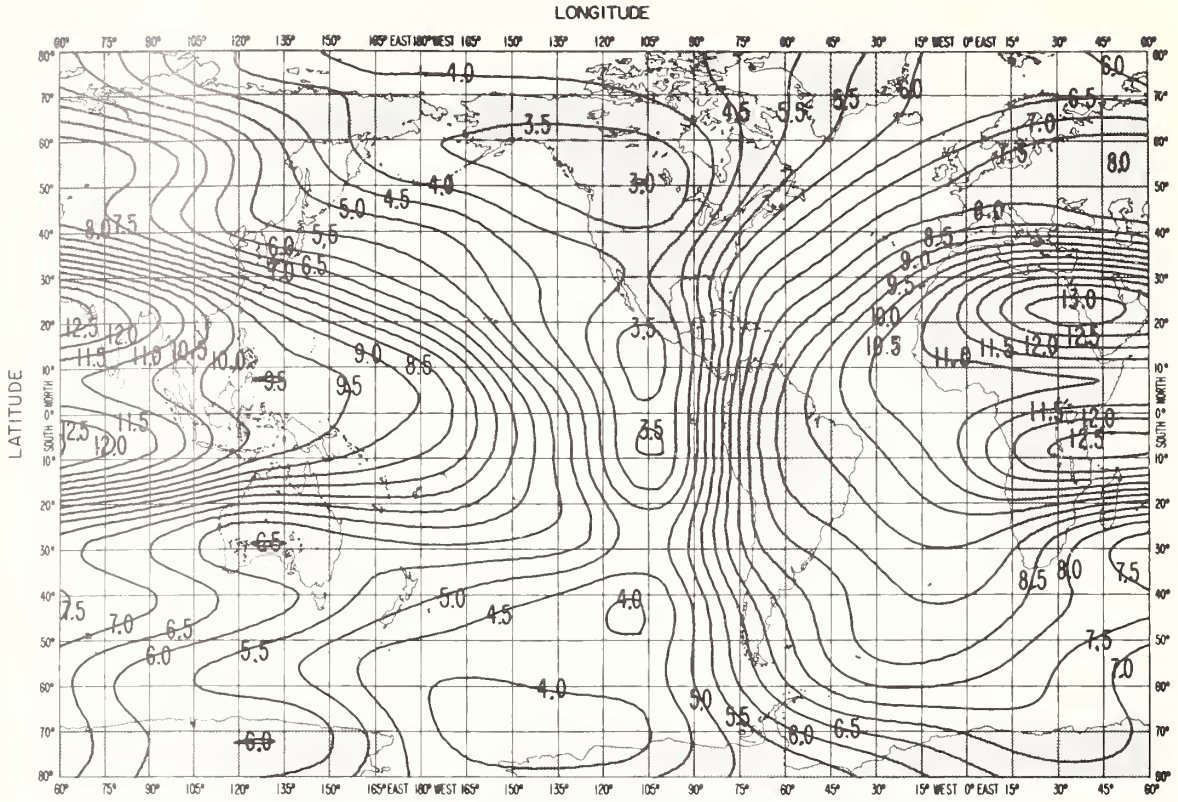

FIG. 7 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

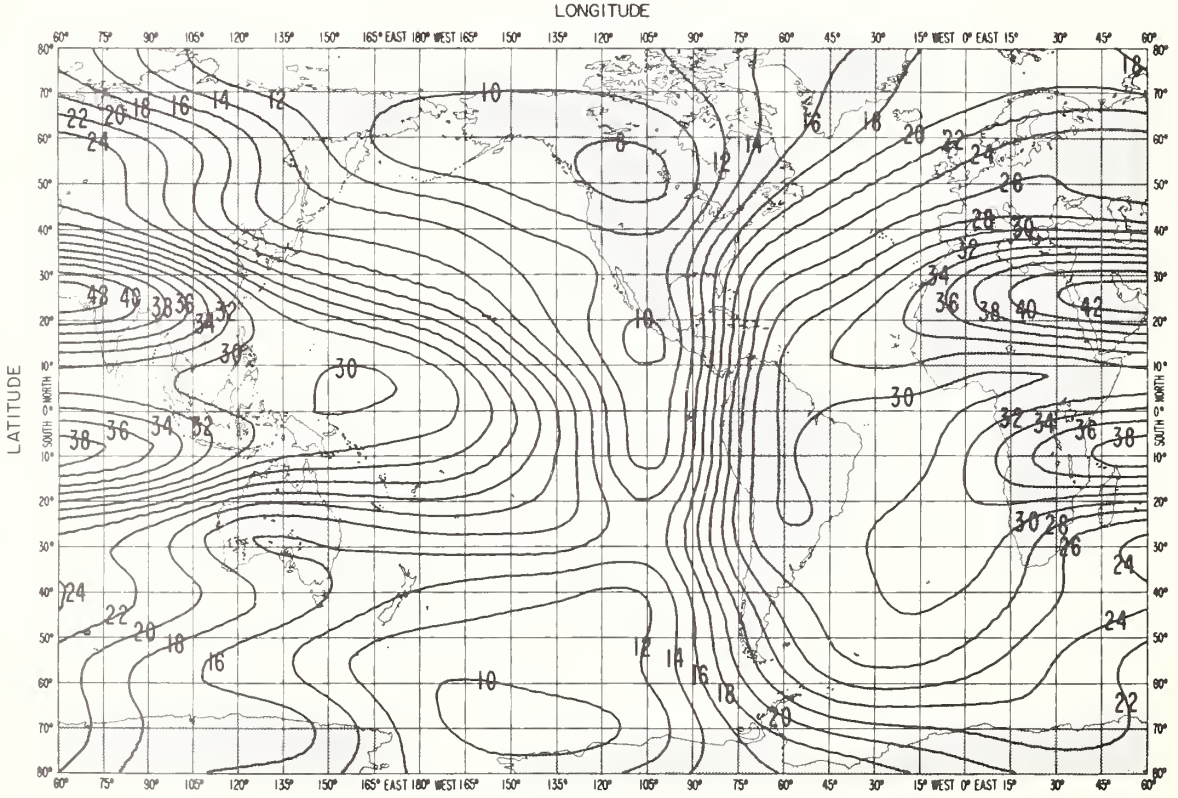

FIG. 7 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

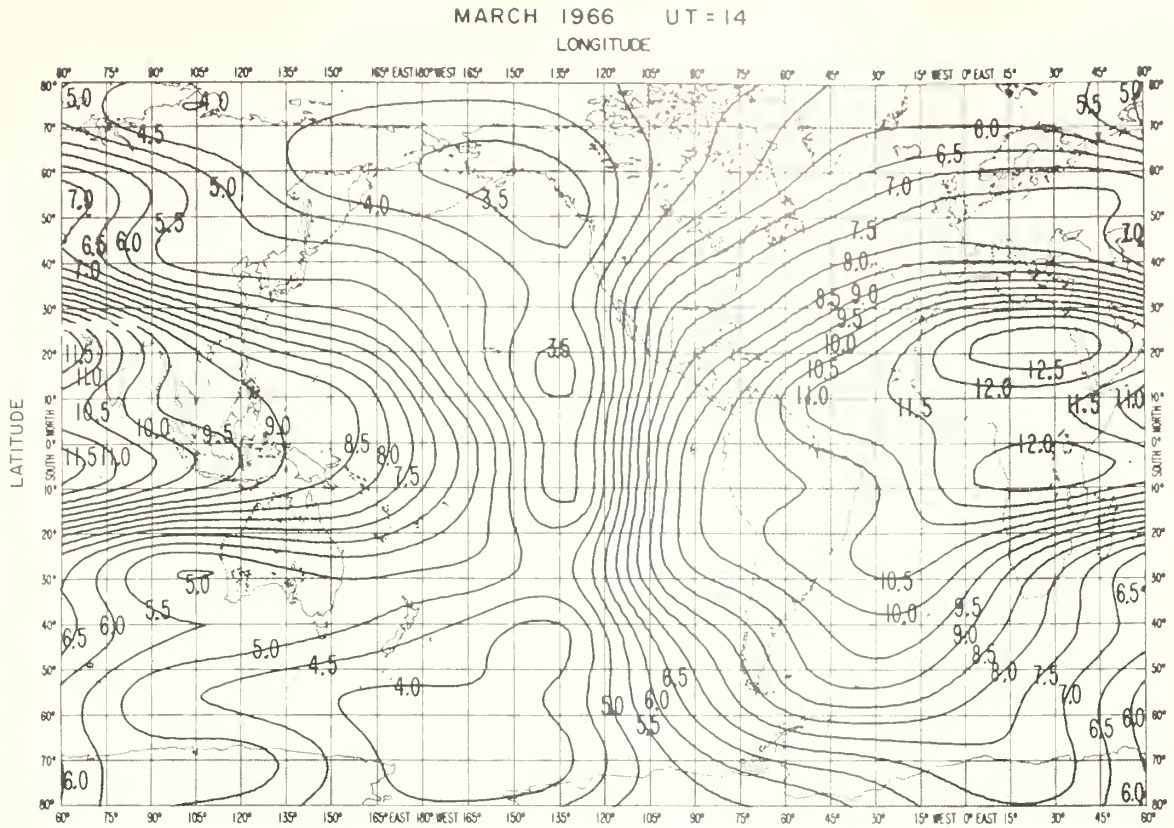

FIG. 8 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

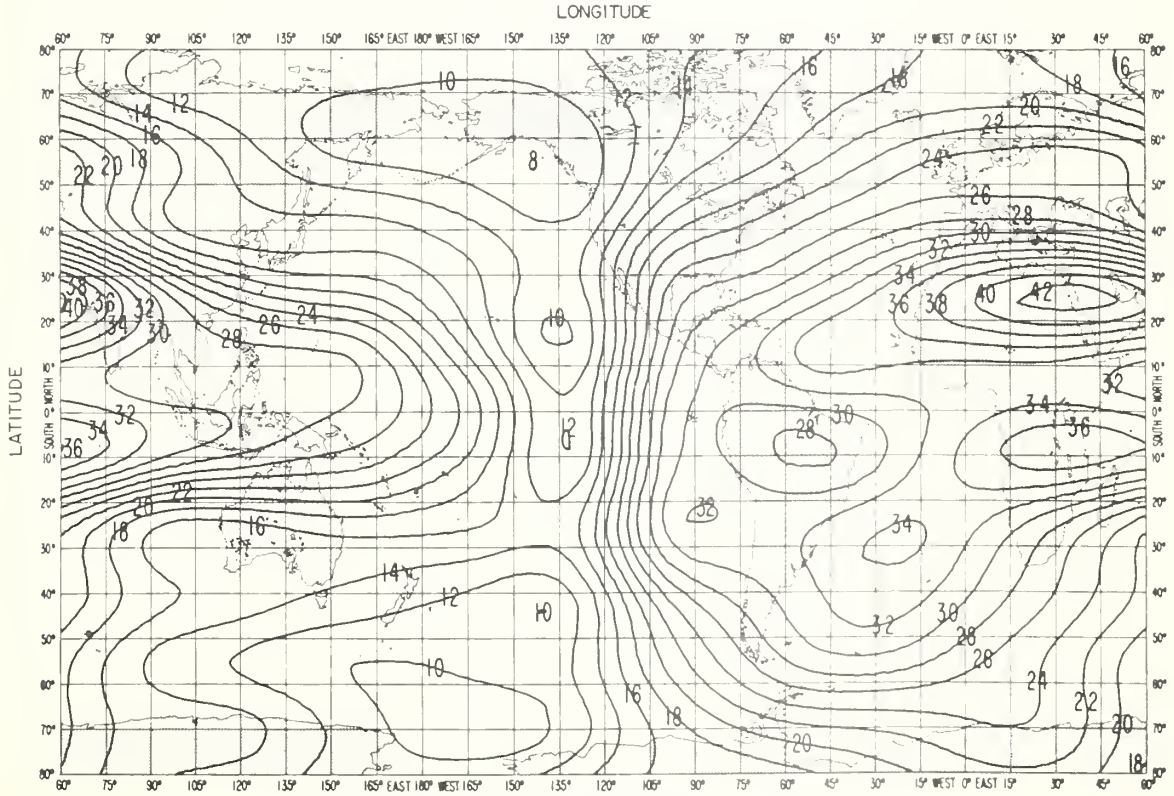

FIG. 8 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT = 16

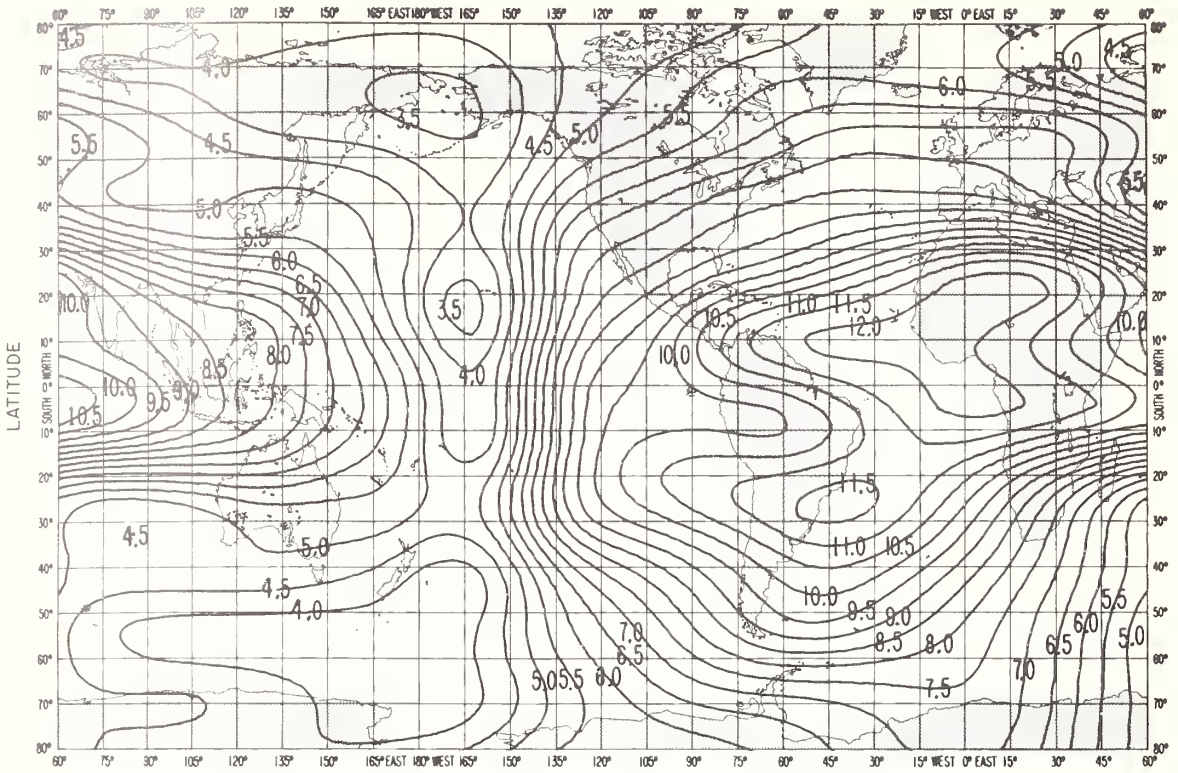

FIG. 9 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

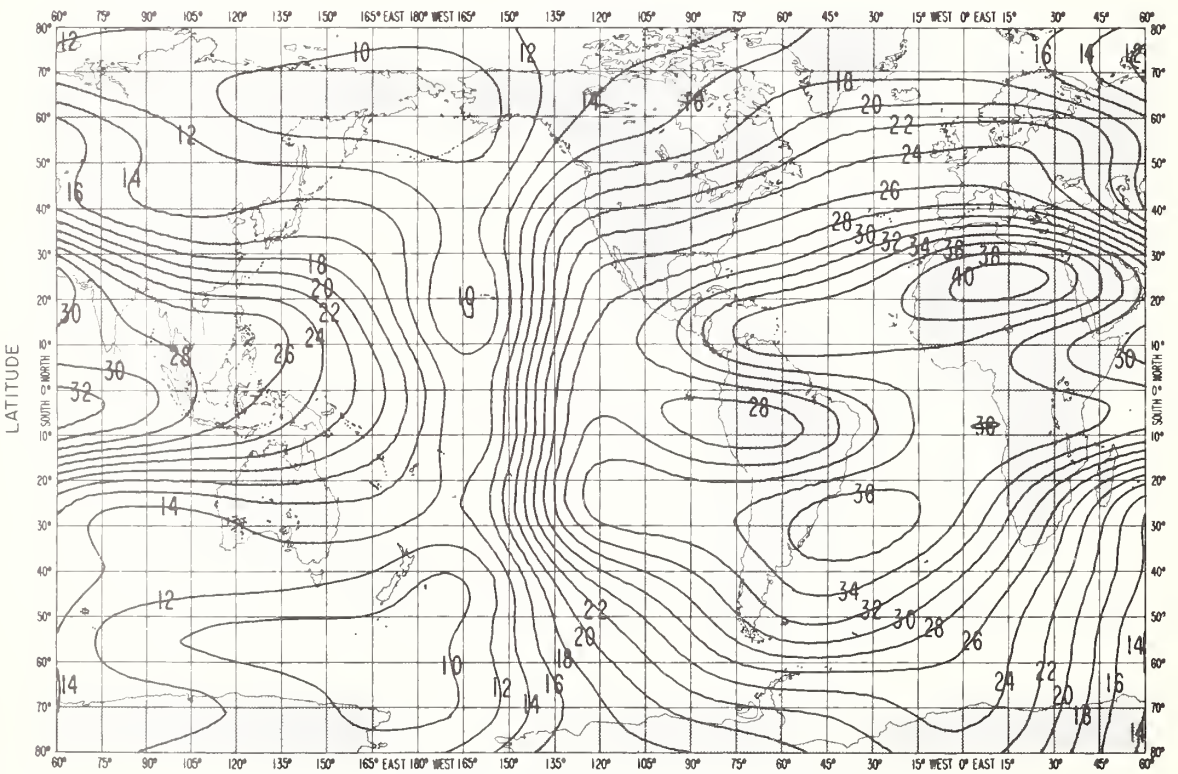

FIG. 9 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT = 18

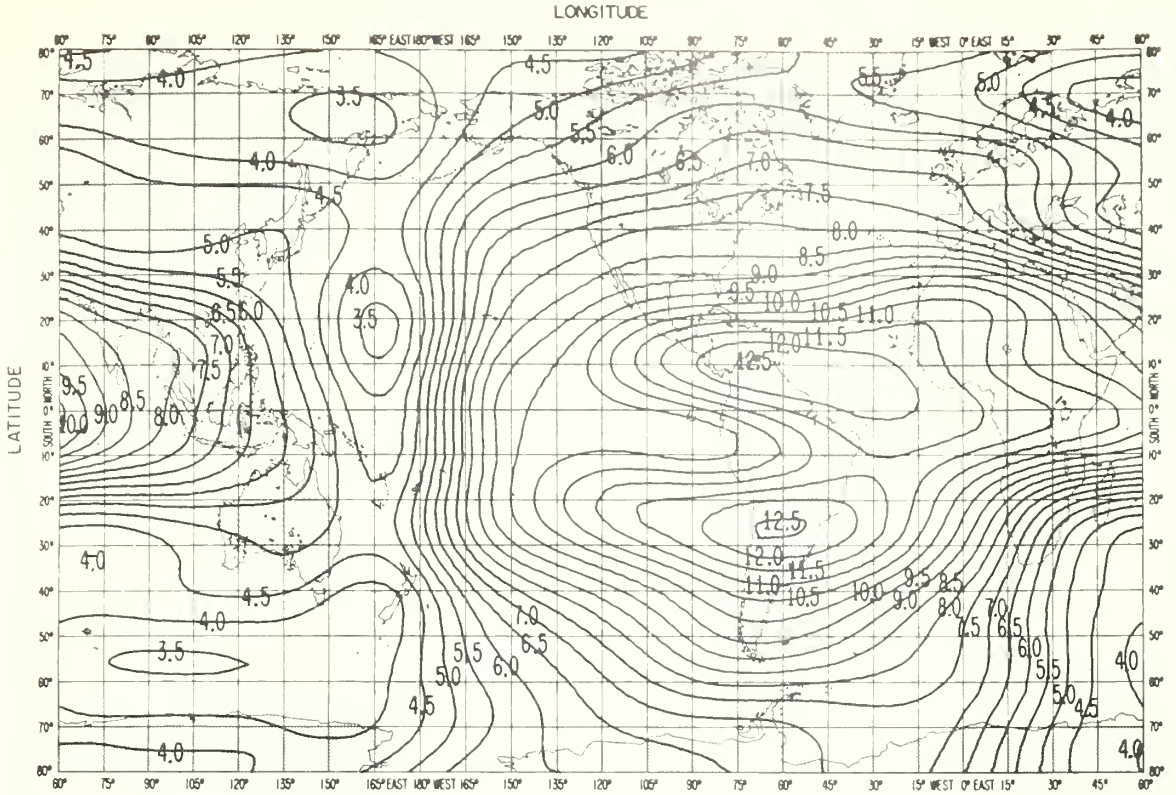

FIG. 10 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

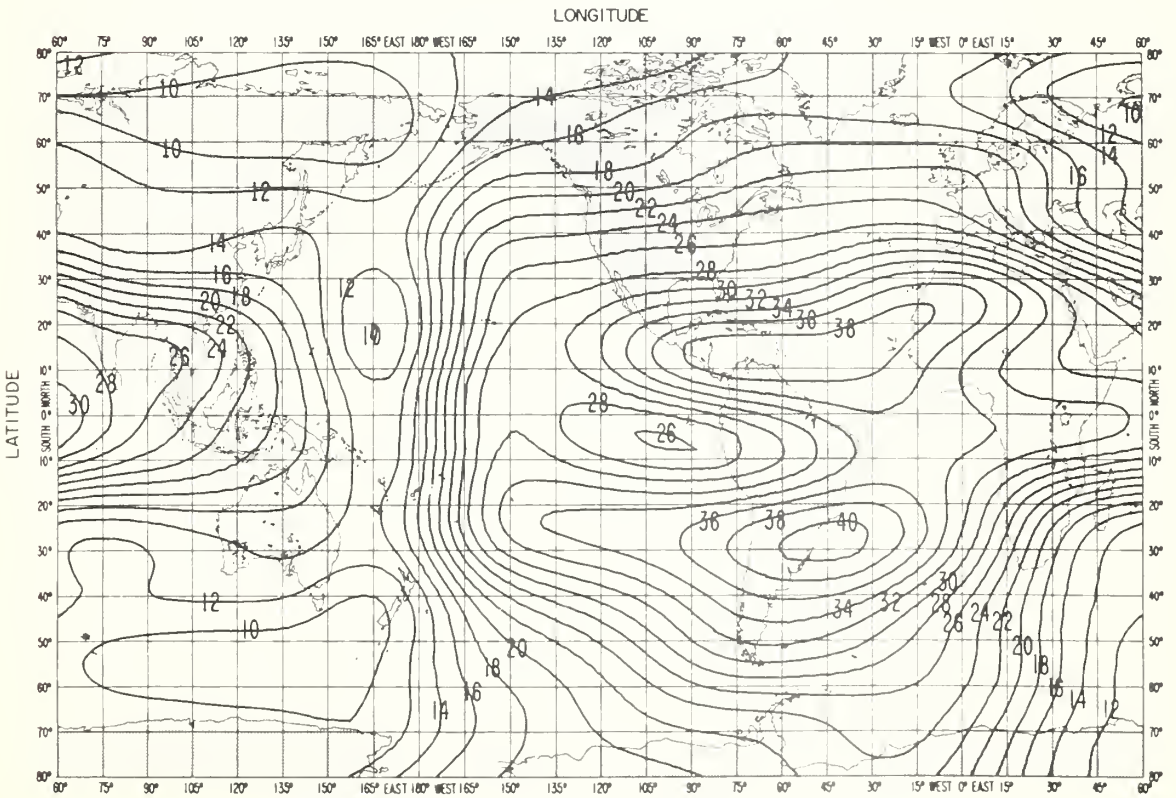

FIG. 10 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT = 20

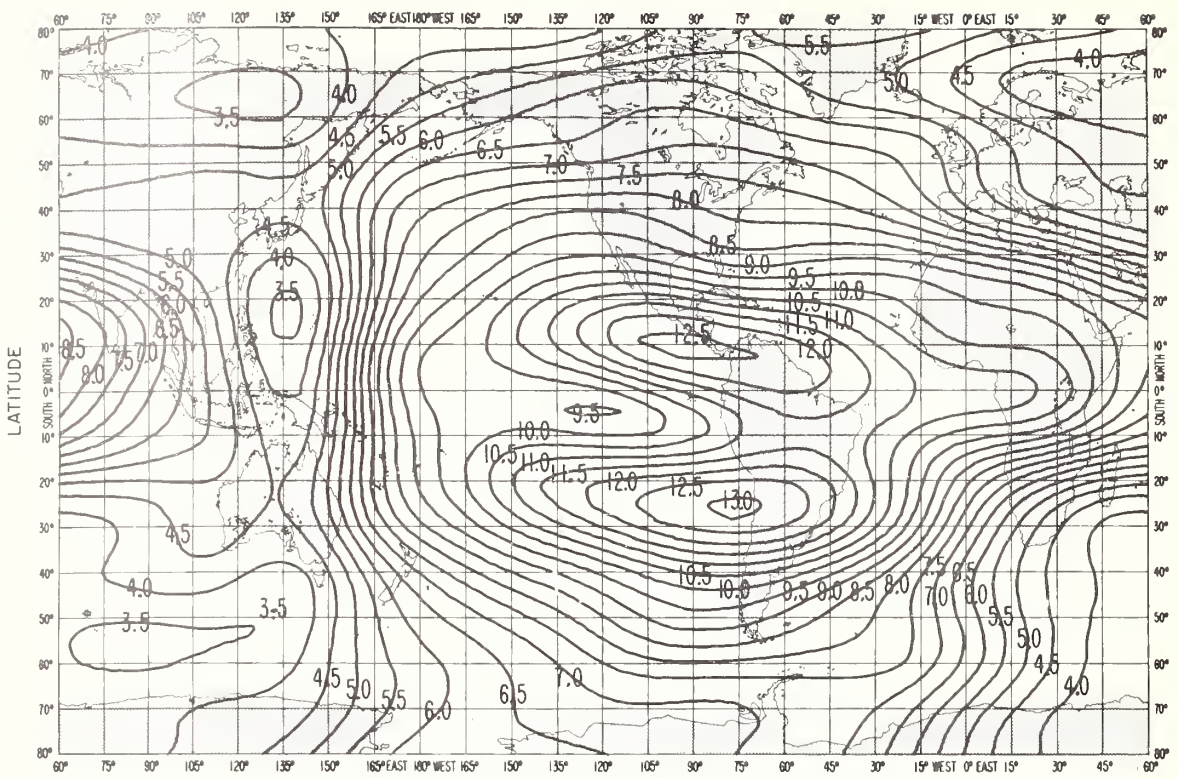

FIG.11 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

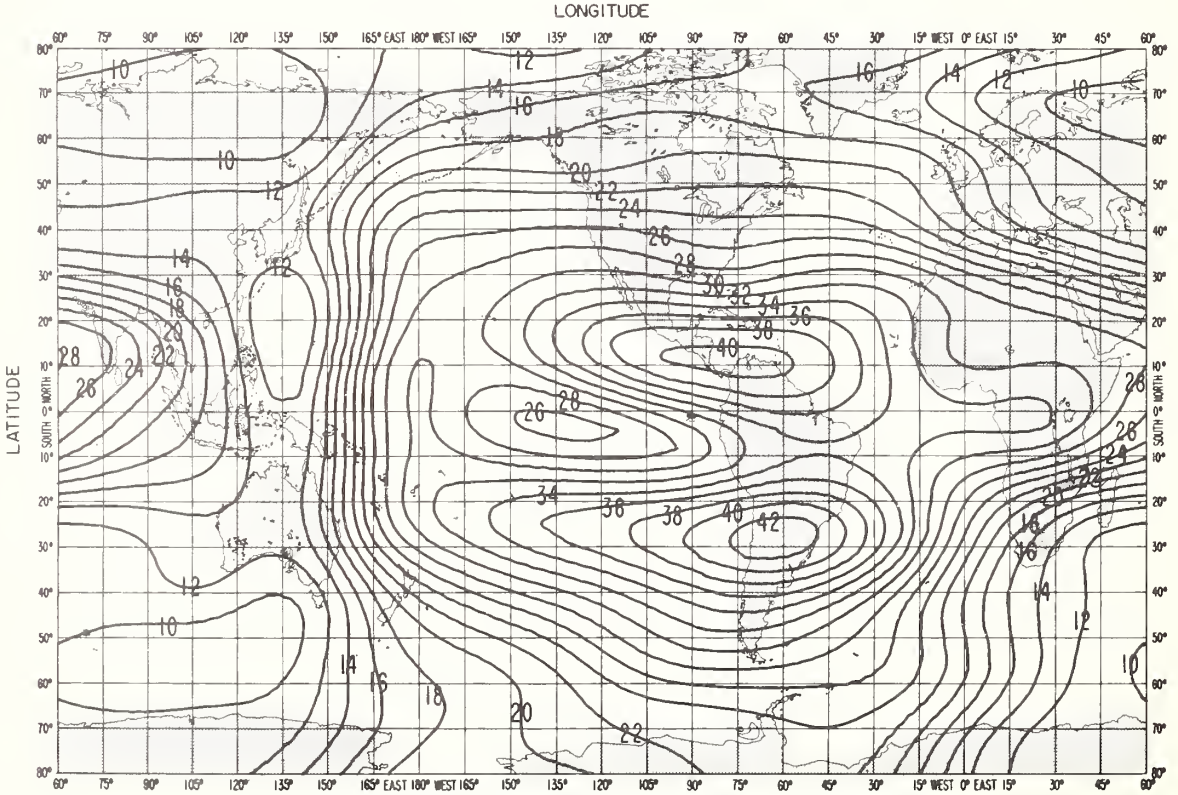

FIG.11 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

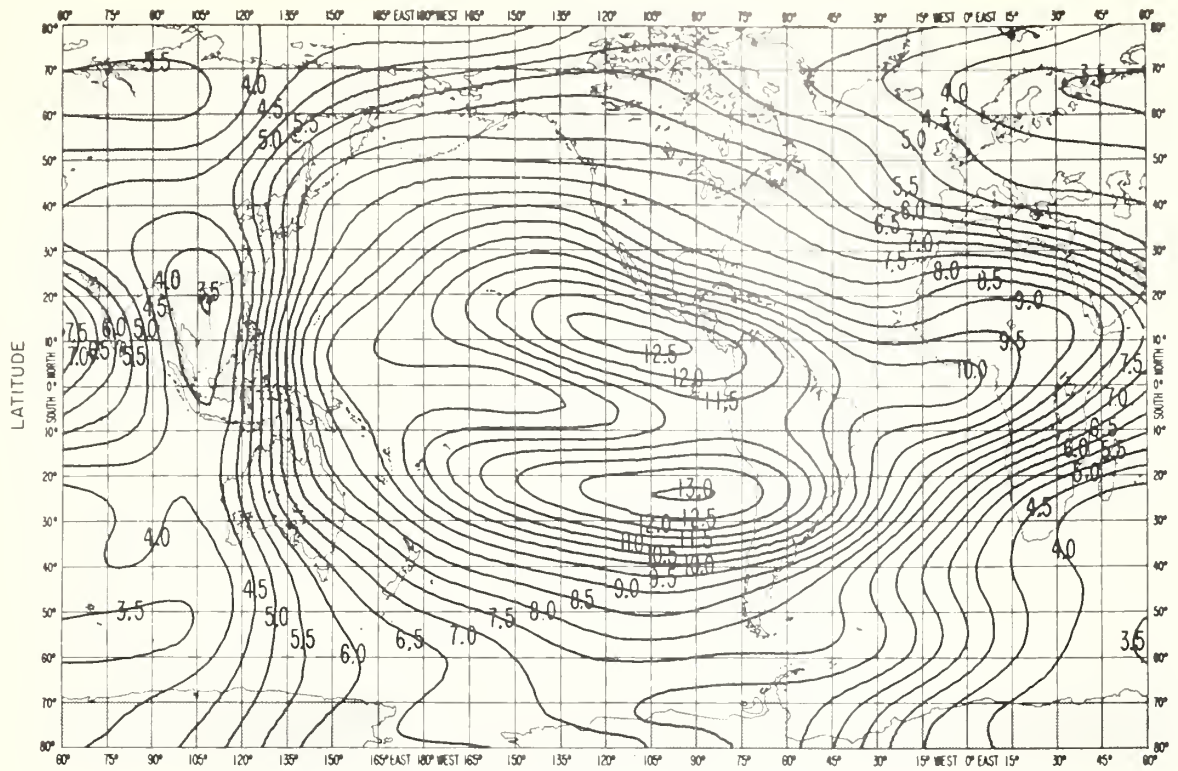

FIG.12 A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

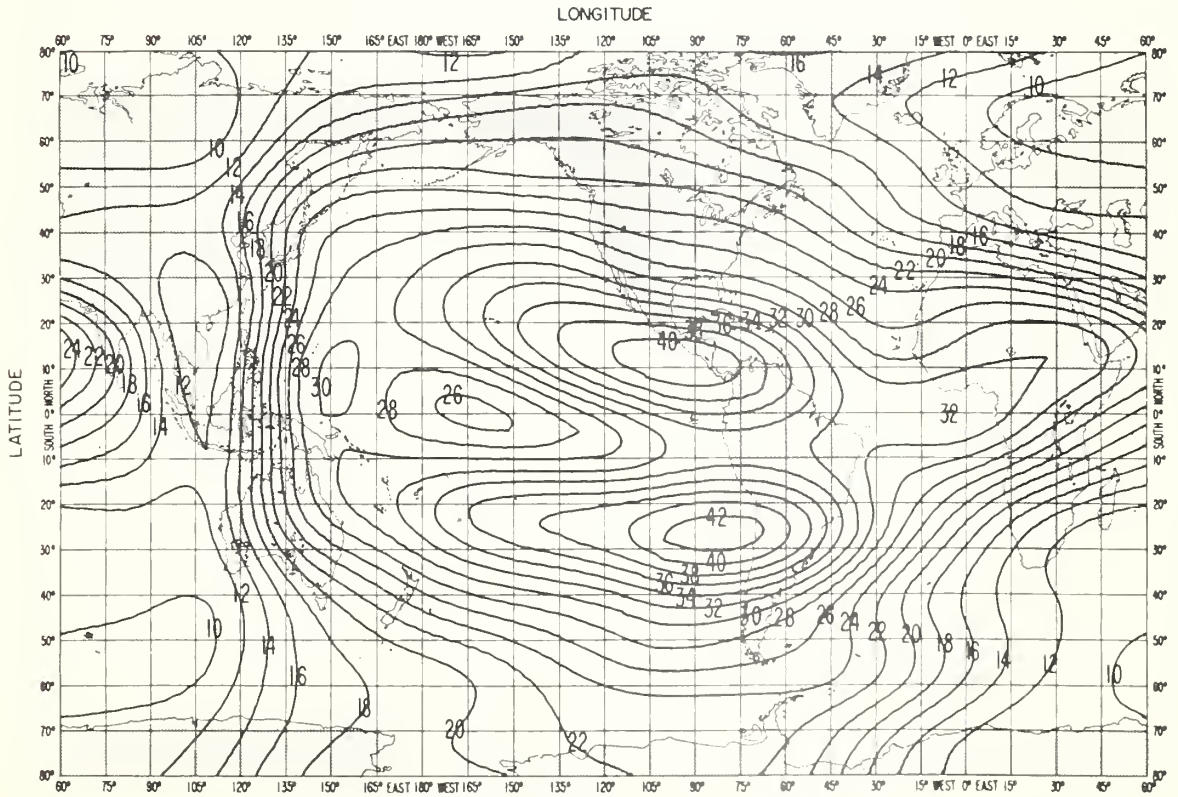

FIG.12 B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

MARCH 1966 UT=00

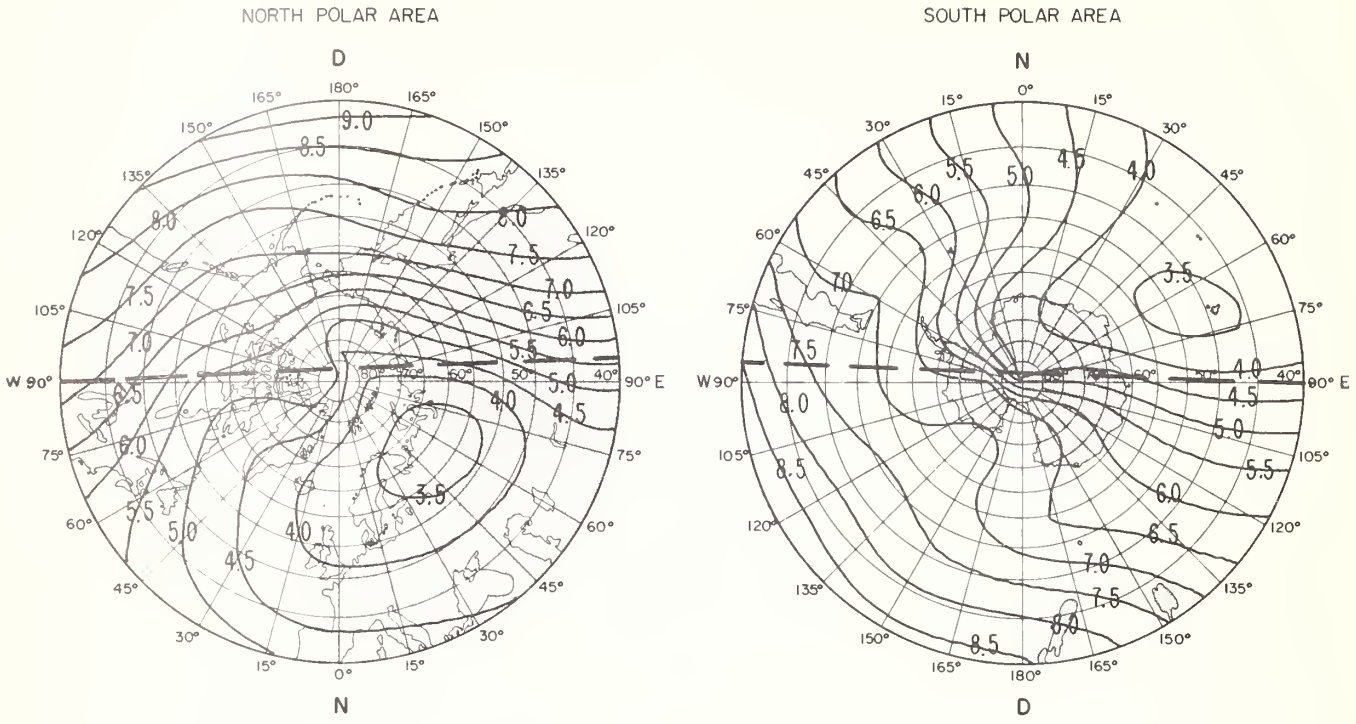

FIG. 13A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

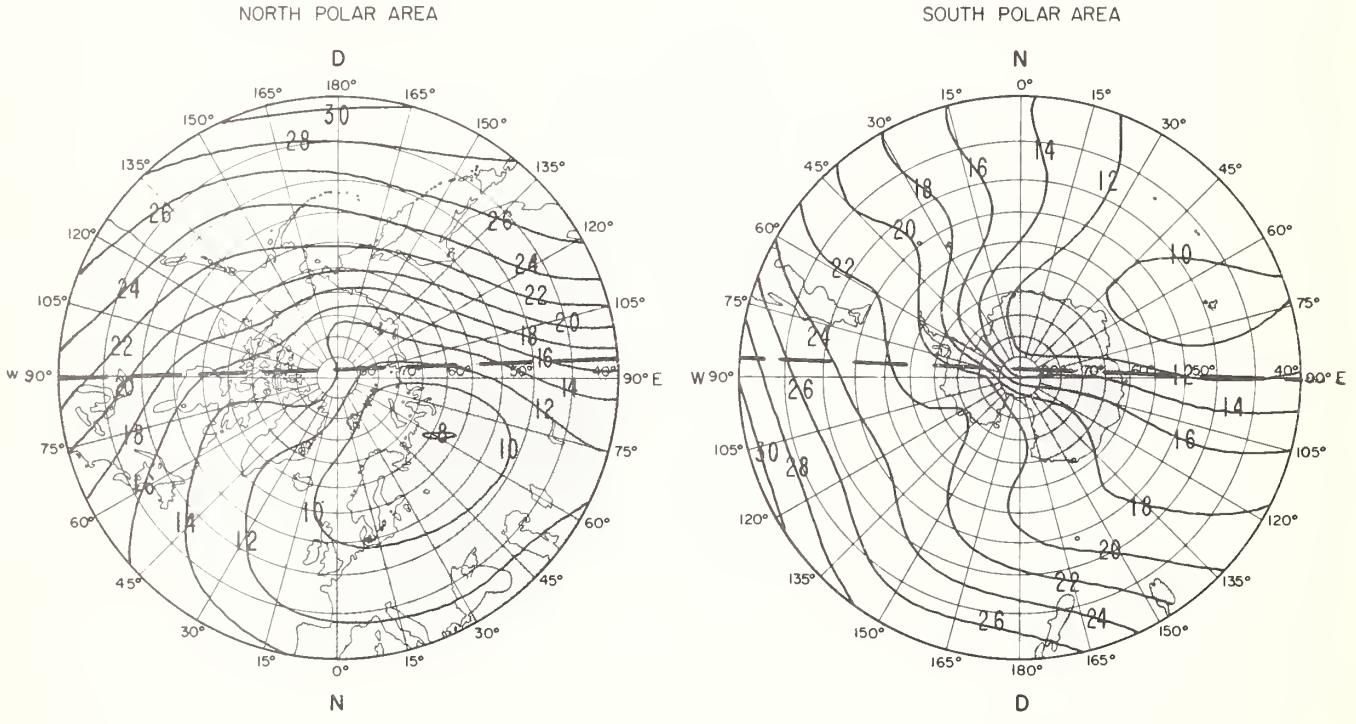

FIG. 13B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT = 02

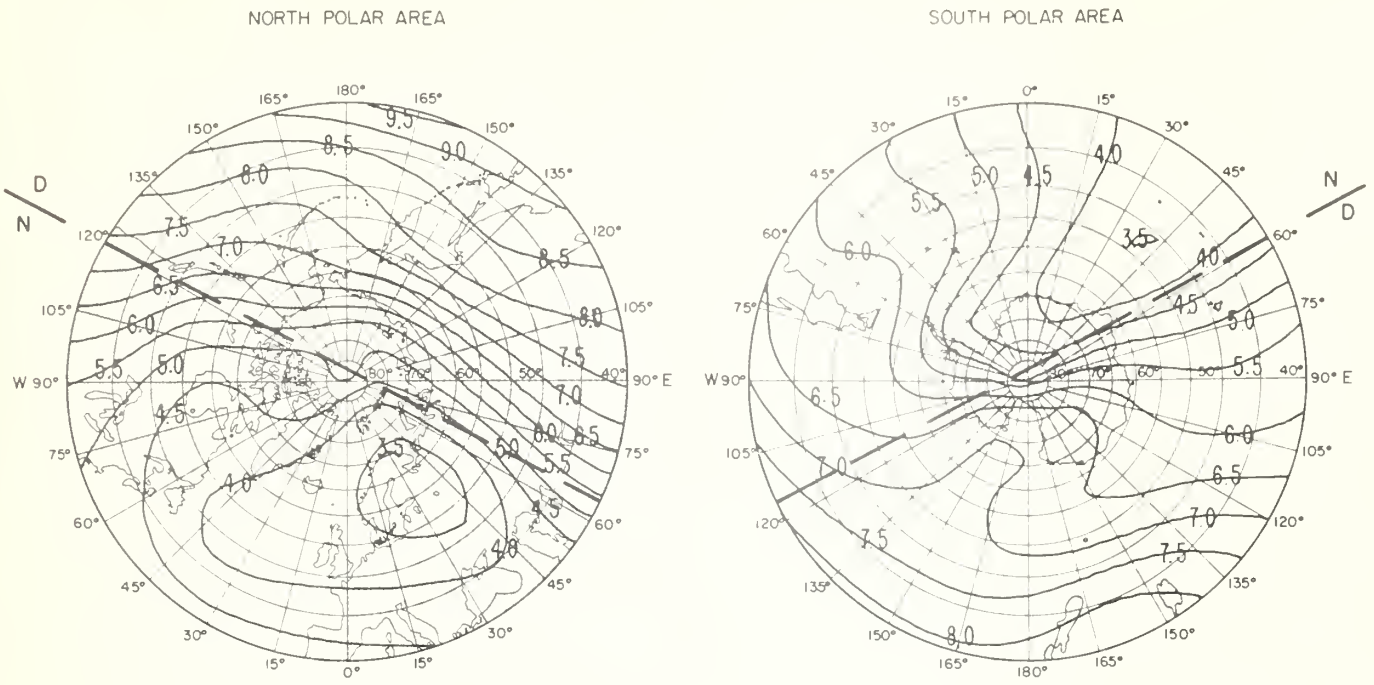

FIG. 14A. PREDICTED MEDIAN MUF (ZERO) F2 (Mc/s)

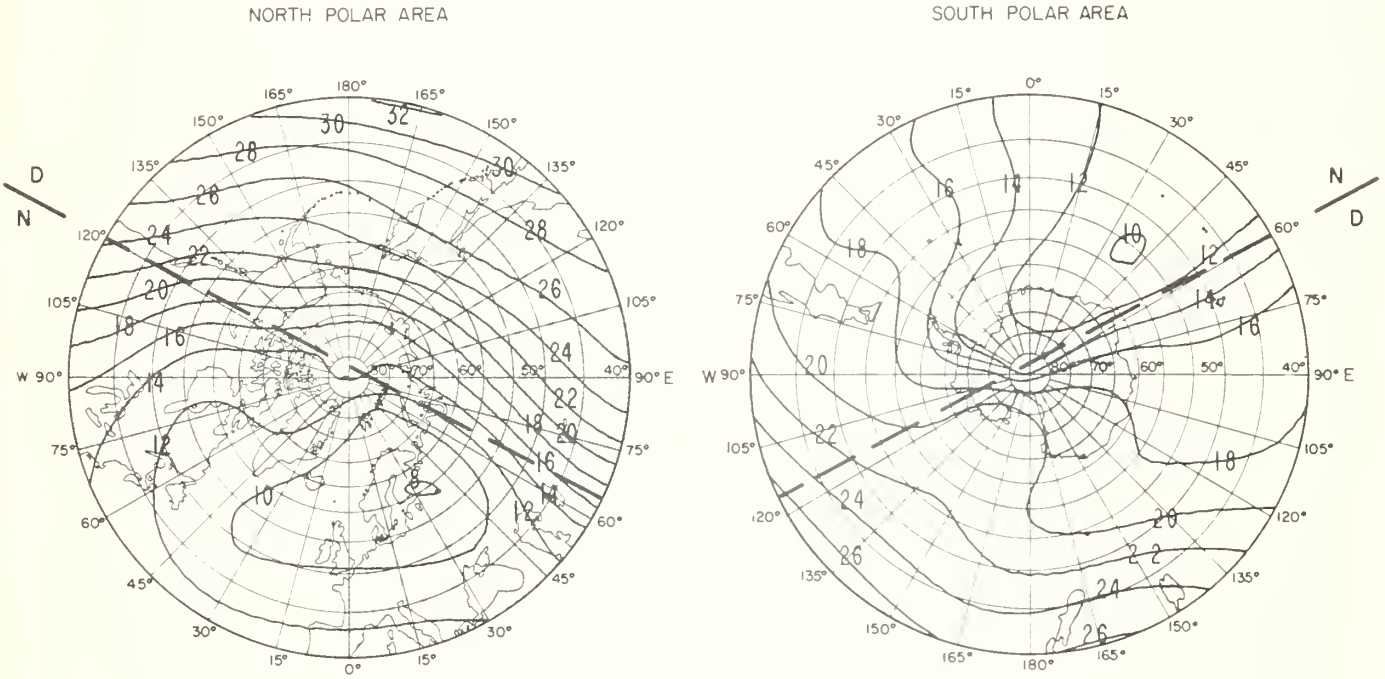

FIG. 14B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT=04

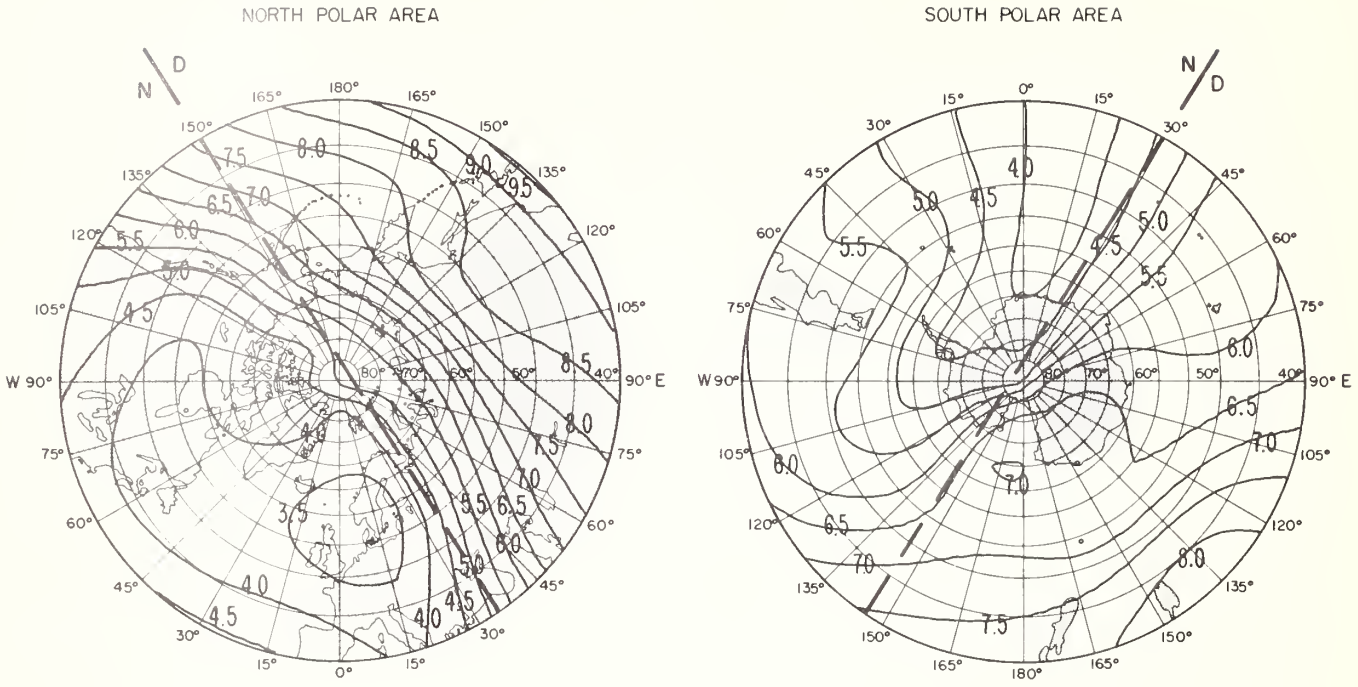

FIG. 15A. PREDICTED MEDIAN MUF(ZERO)F2 (MC/S)

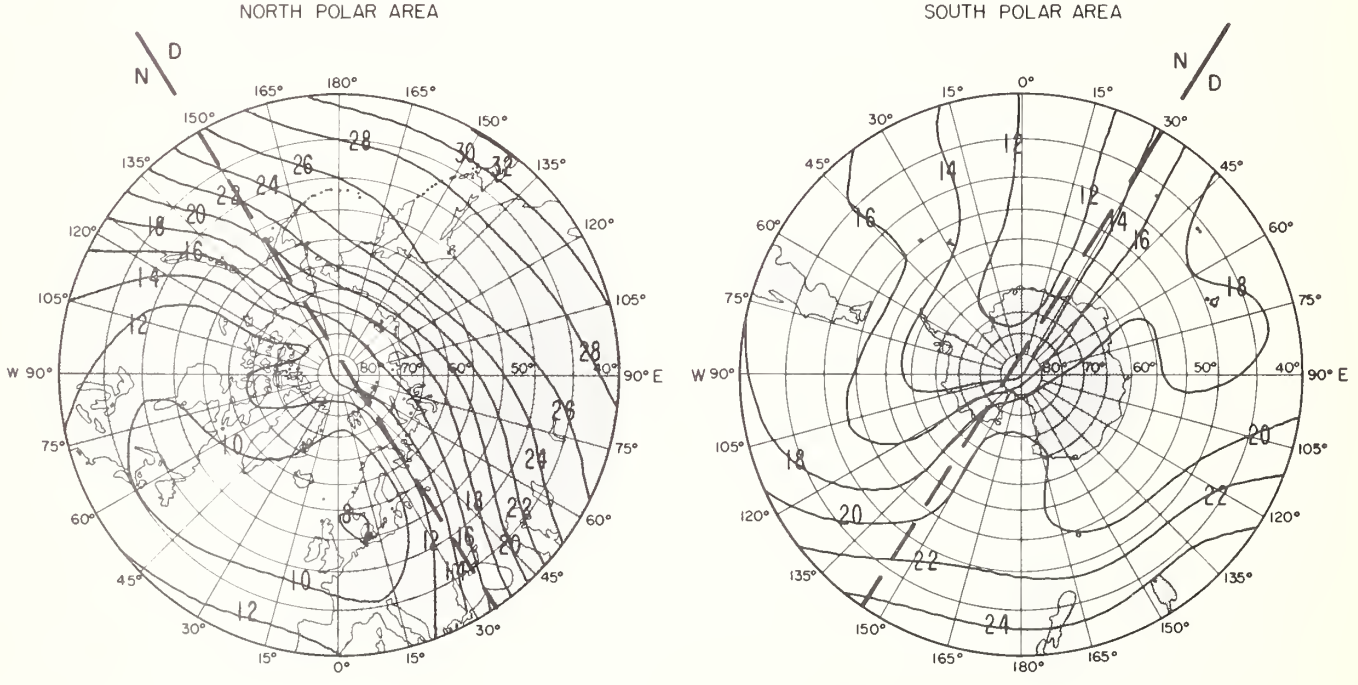

FIG. 15B. PREDICTED MEDIAN MUF(4000)F2 (MC/S)

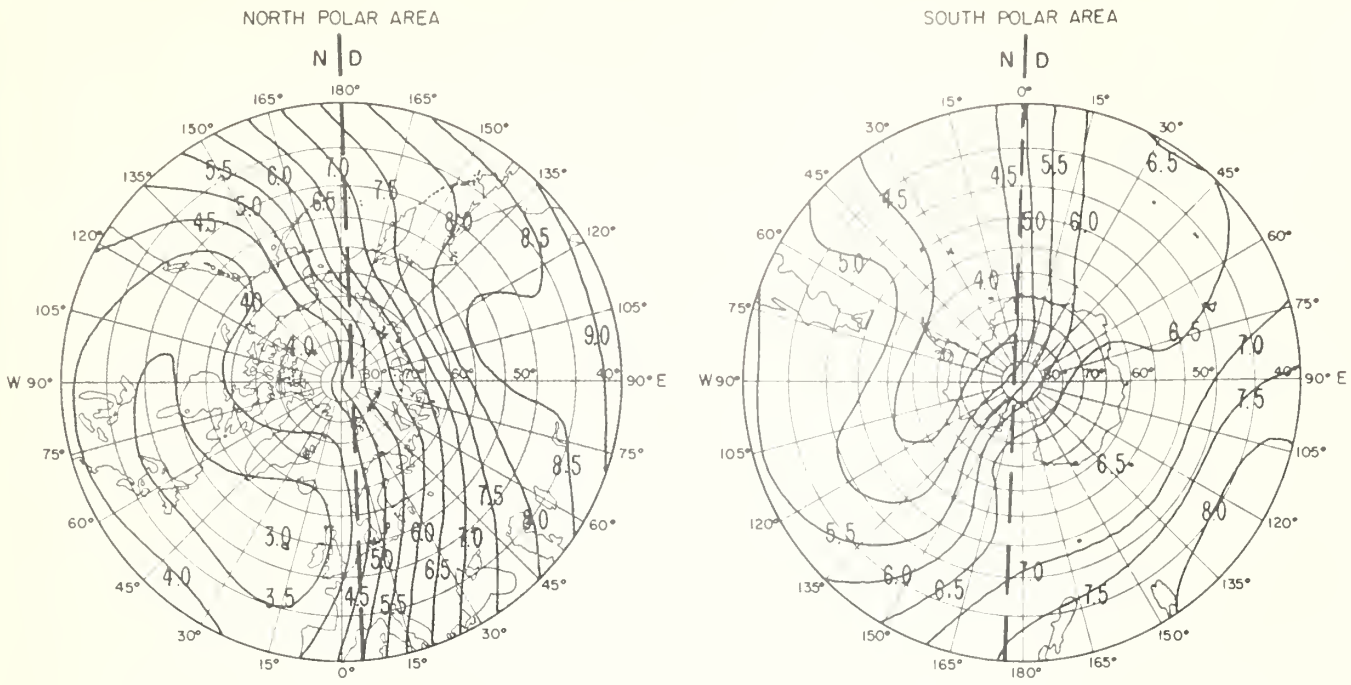

FIG. 16A. PREDICTED MEDIAN MUF (ZERO) F2 (Mc/s)

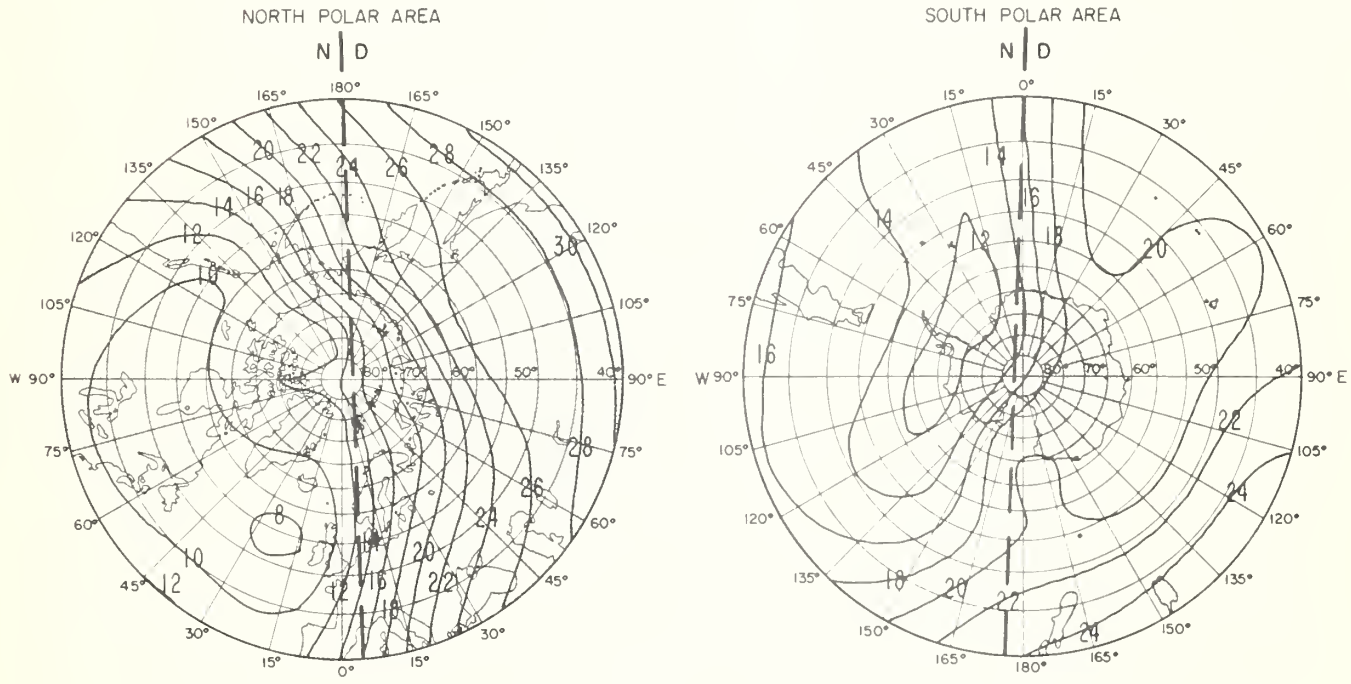

FIG. 16B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT=08

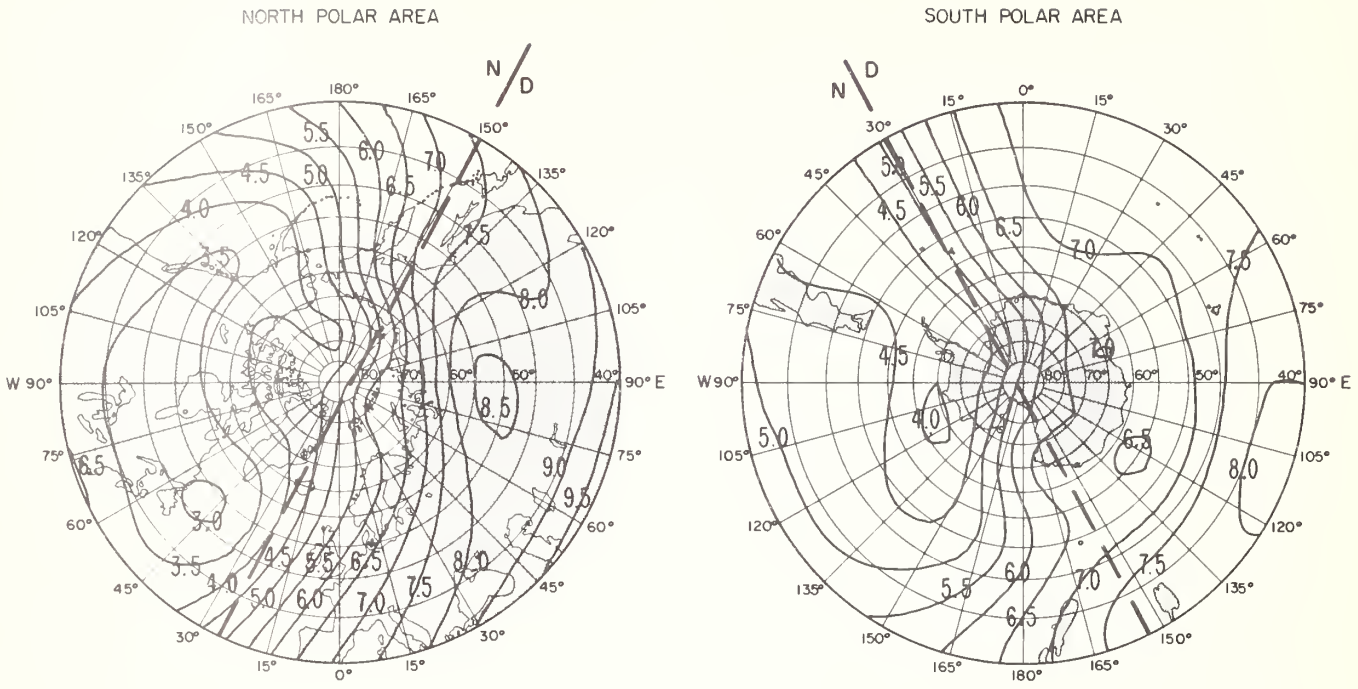

FIG. 17A. PREDICTED MEDIAN MUF(ZERO)F2 (MC/S)

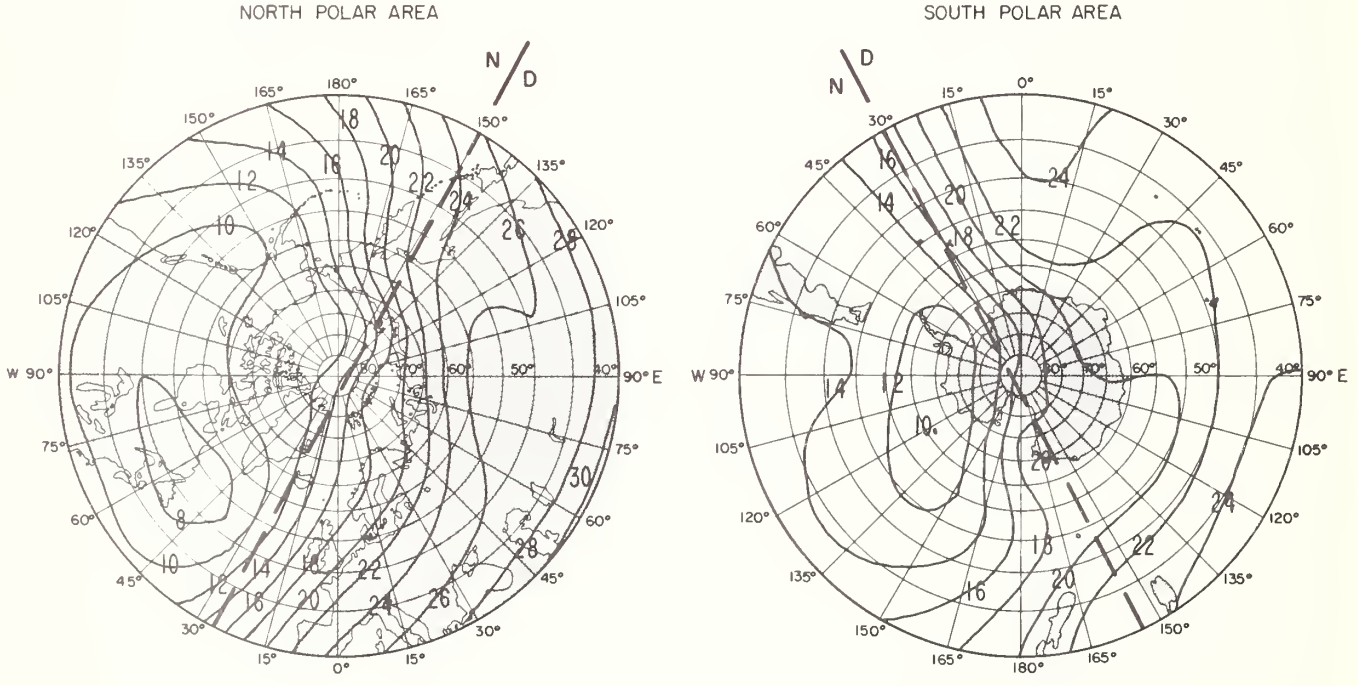

FIG. 17B. PREDICTED MEDIAN MUF(4000)F2 (MC/S)

MARCH 1966 UT = 10

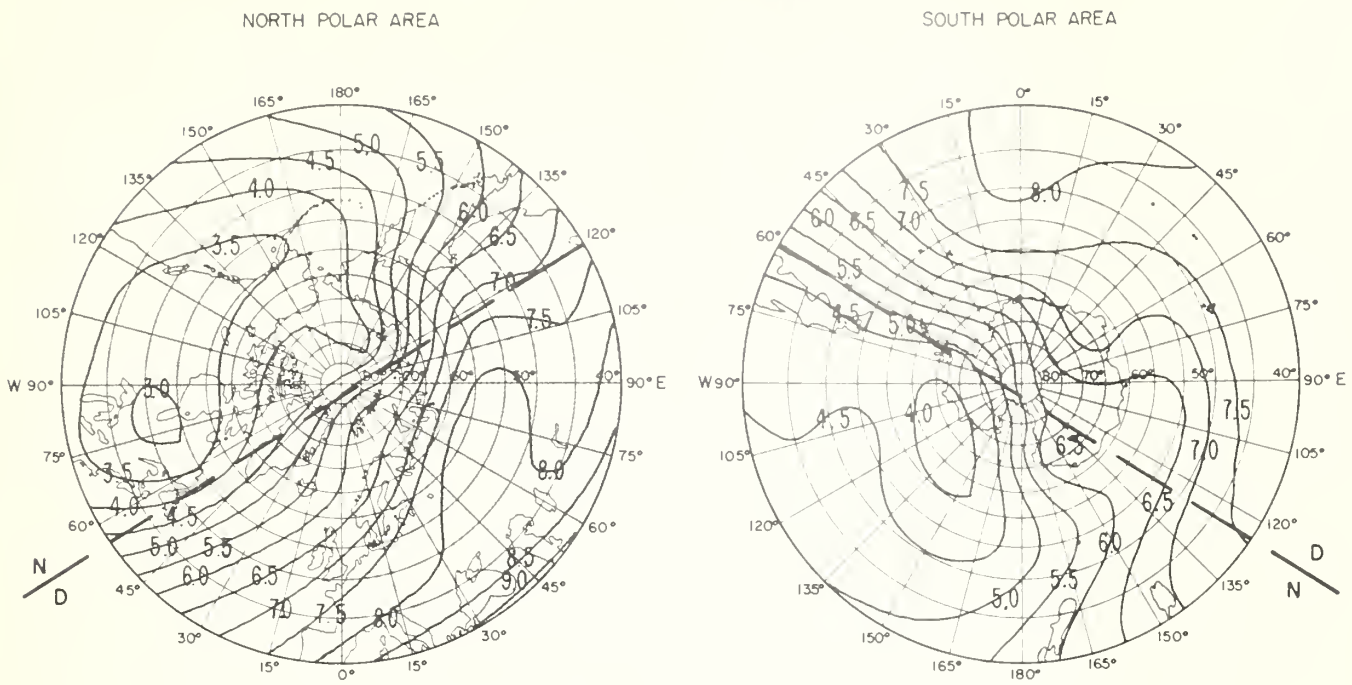

FIG. 18A. PREDICTED MEDIAN MUF (ZERO) F2 (Mc/s)

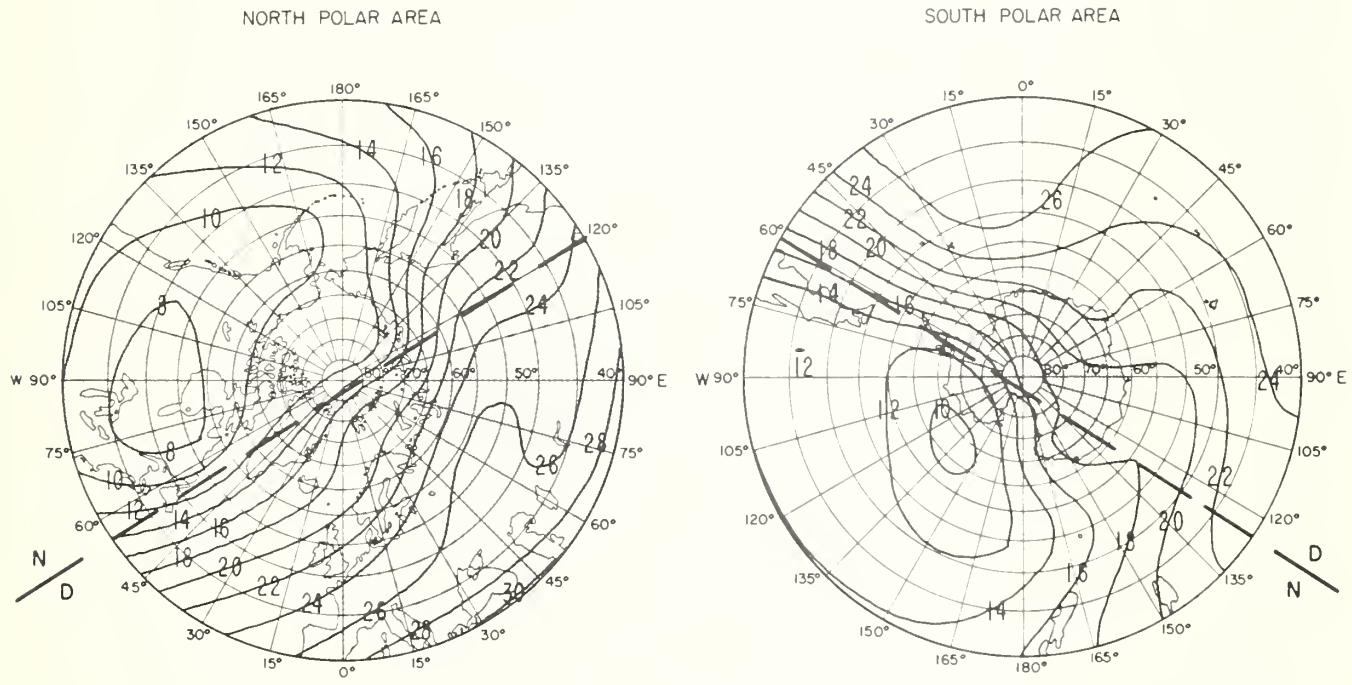

FIG. 18B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT = 16

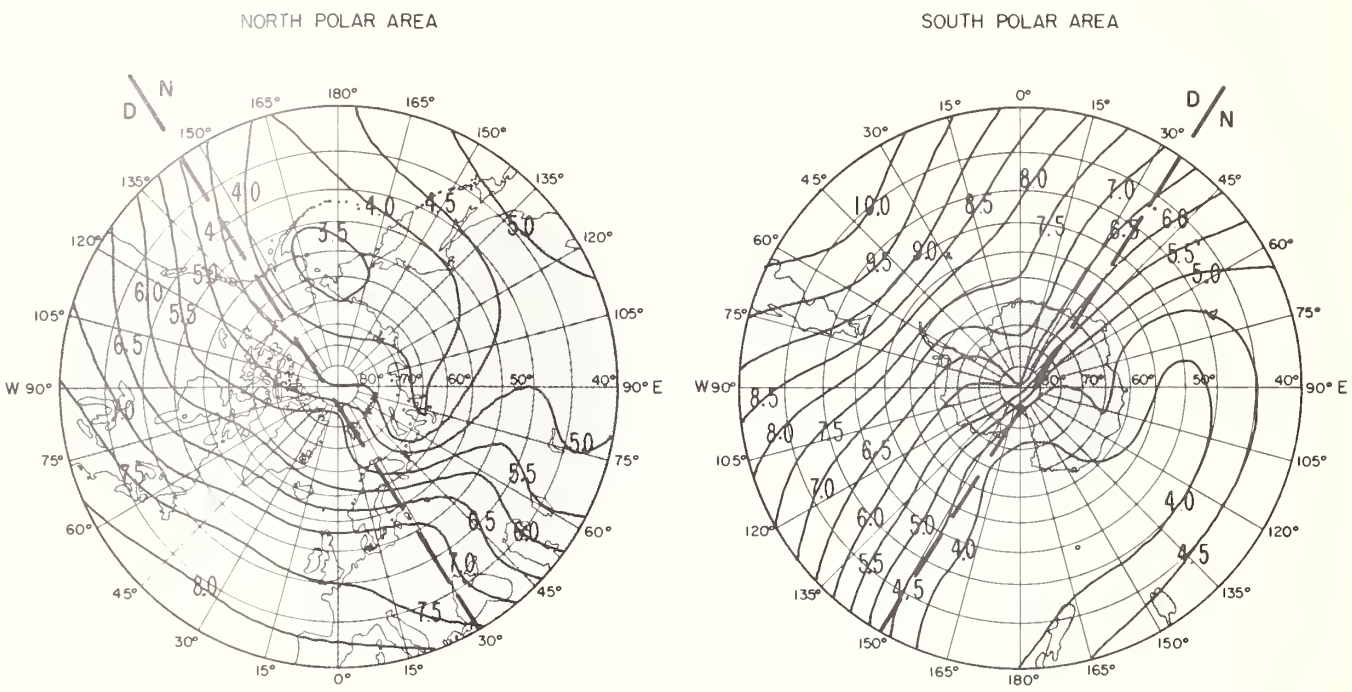

FIG. 21 A. PREDICTED MEDIAN MUF (ZERO) F2 (Mc/s)

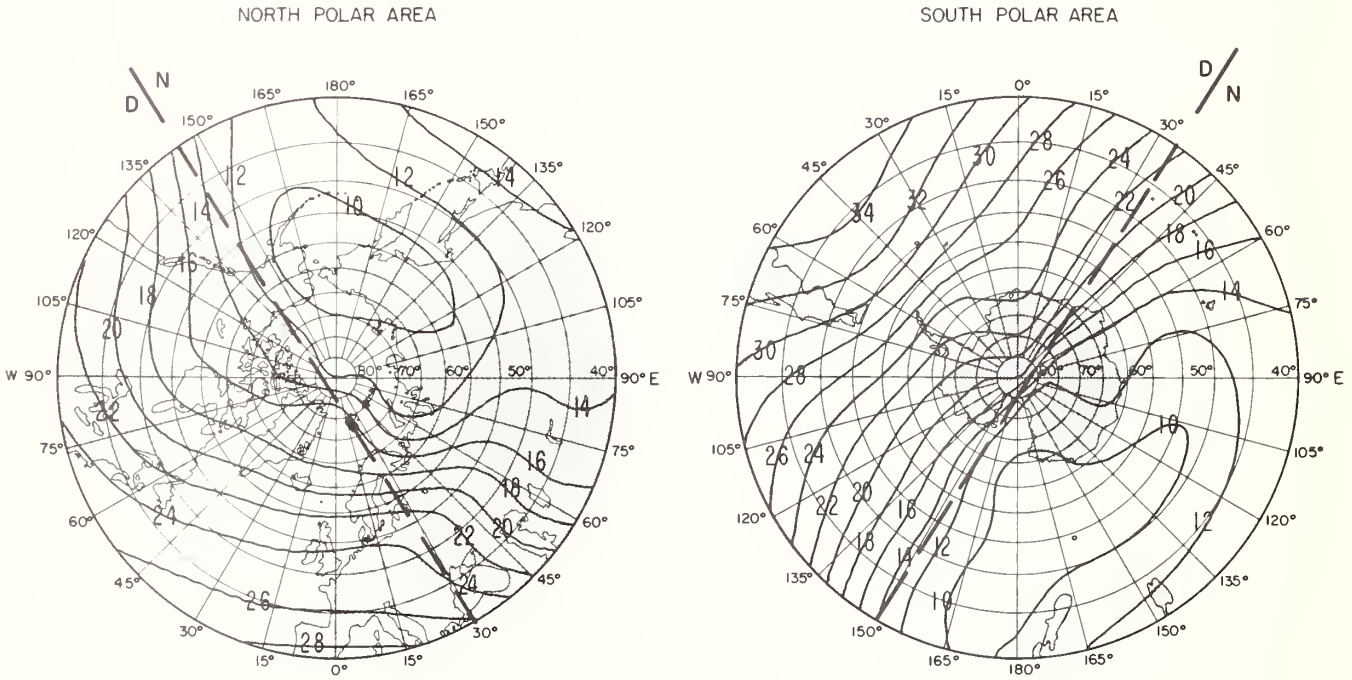

FIG. 21 B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT = 18

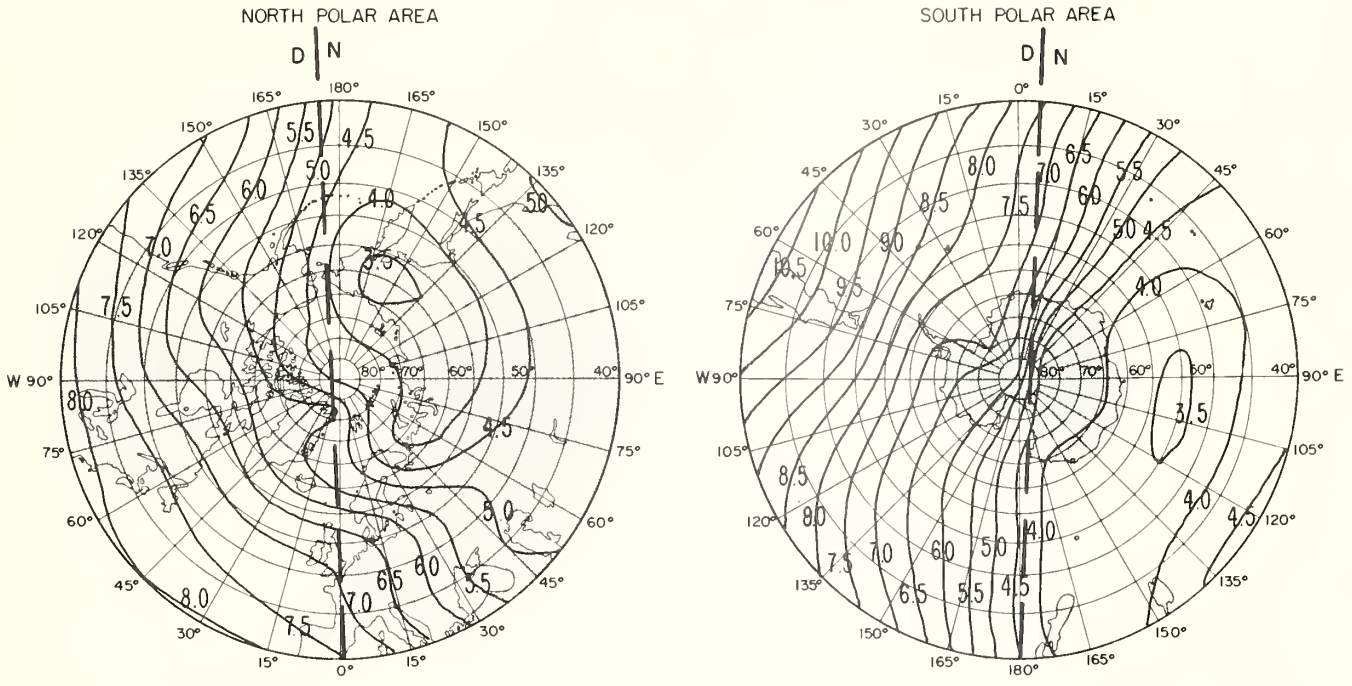

FIG. 22A. PREDICTED MEDIAN MUF (ZERO) F2 (Mc/s)

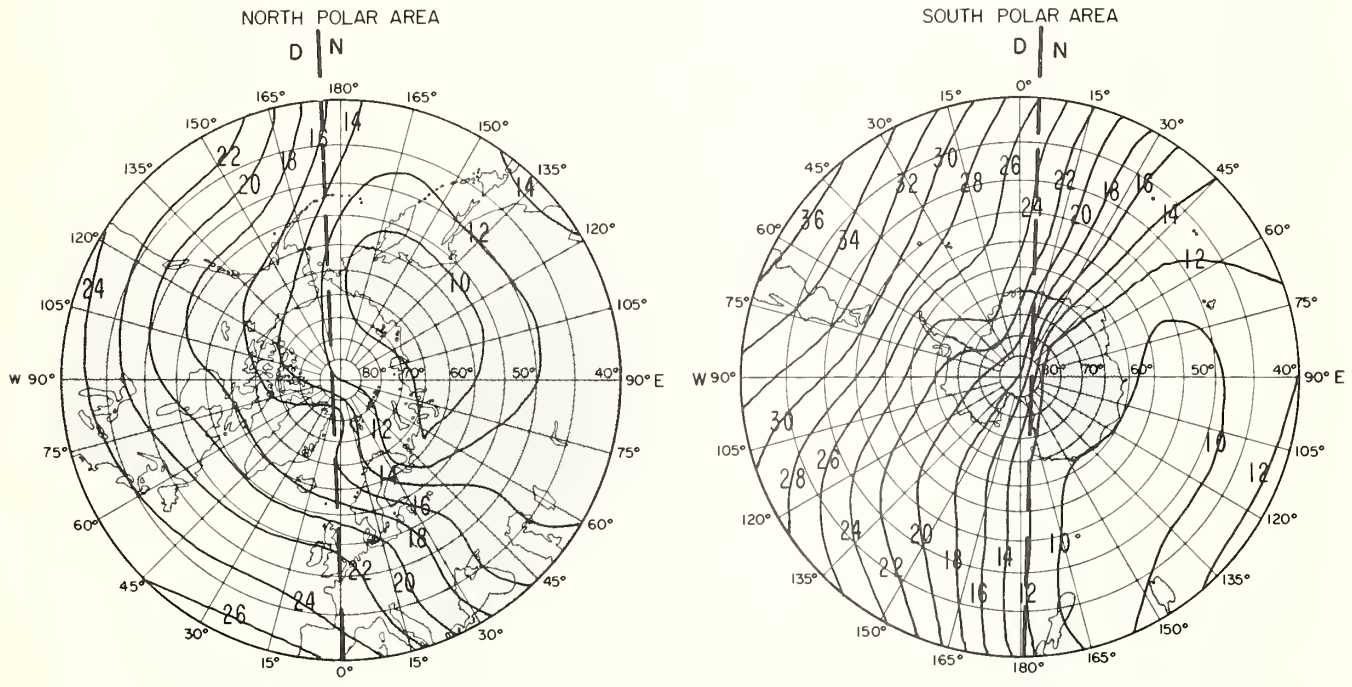

FIG. 22B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT=20

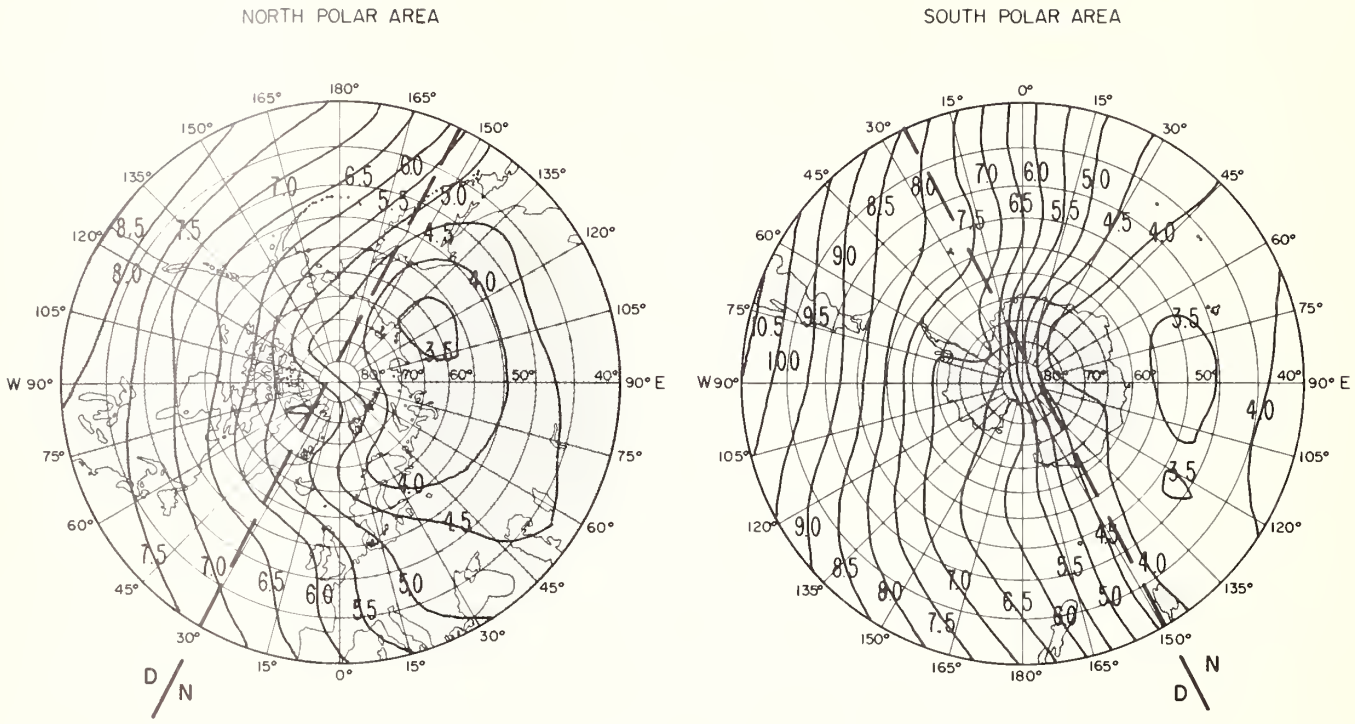

FIG. 23A. PREDICTED MEDIAN MUF (ZERO) F2 (Mc/s)

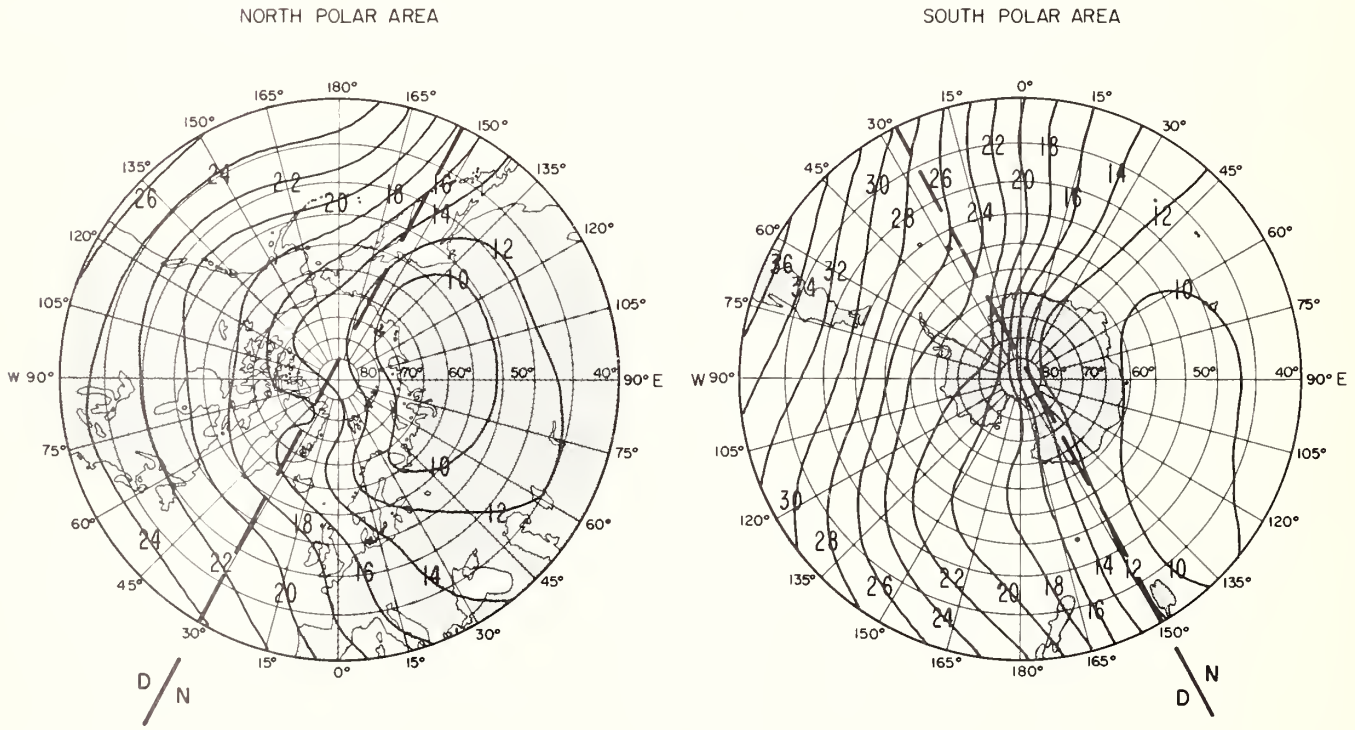

FIG. 23B. PREDICTED MEDIAN MUF (4000) F2 (Mc/s)

MARCH 1966 UT=22

NORTH POLAR AREA

SOUTH POLAR AREA

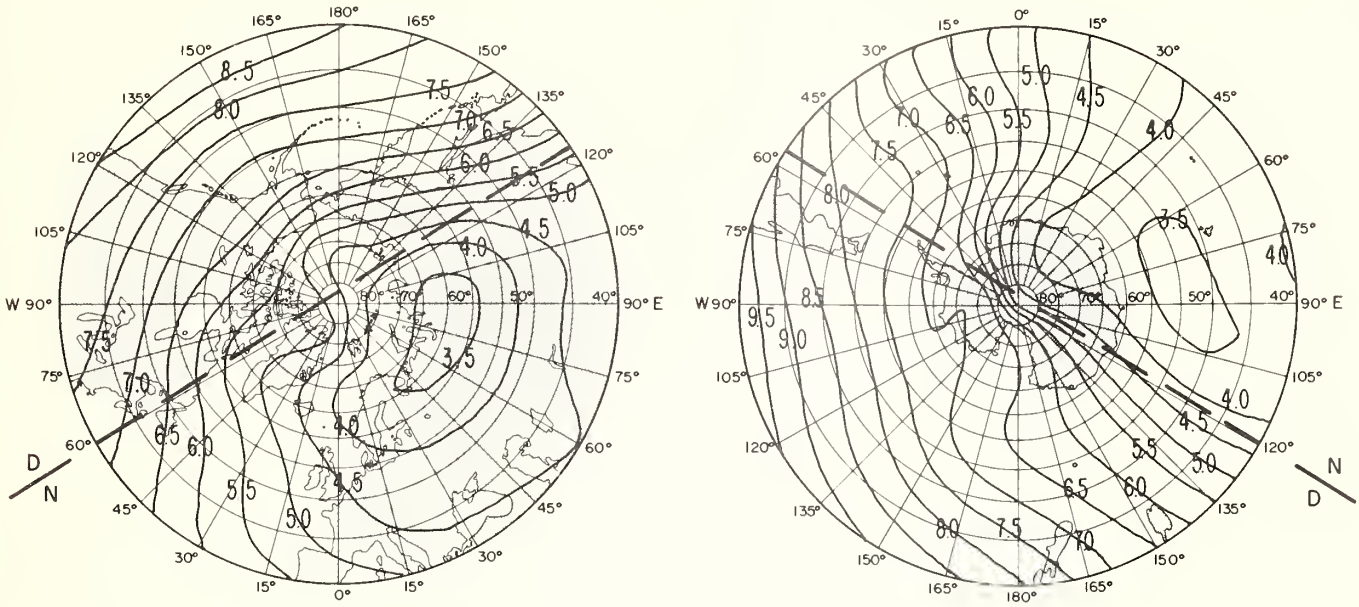

FIG.24A. PREDICTED MEDIAN MUF(ZERO)F2 (Mc/s)

NORTH POLAR AREA

SOUTH POLAR AREA

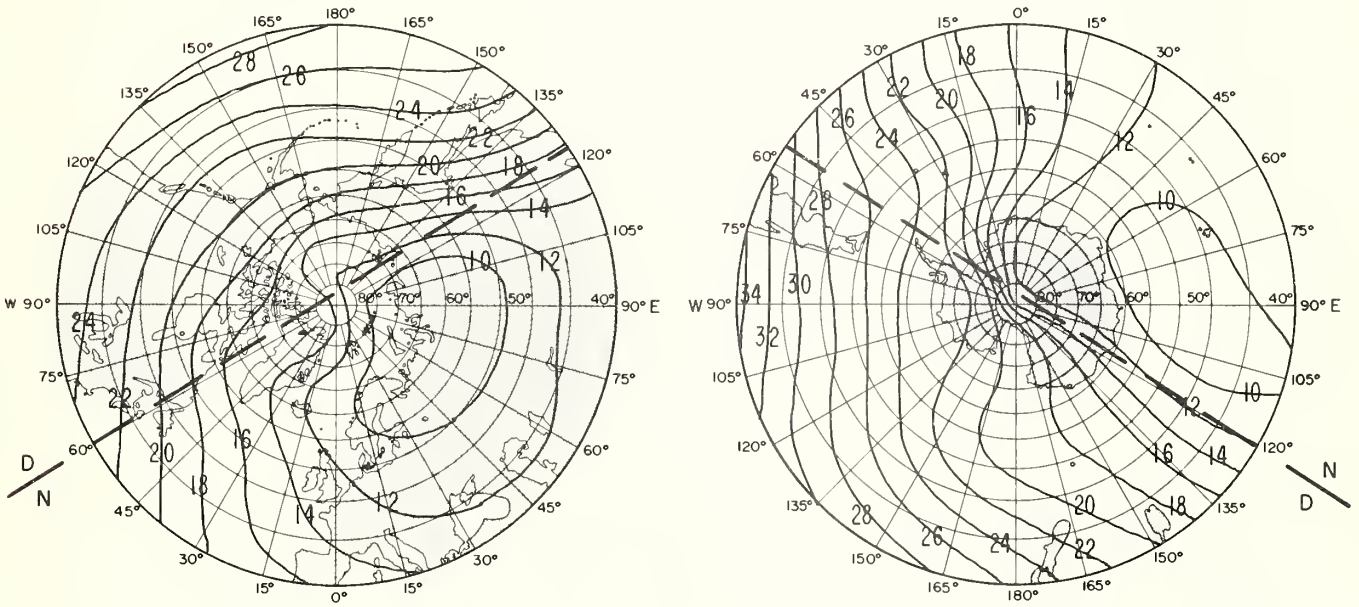

FIG.24B. PREDICTED MEDIAN MUF(4000)F2 (Mc/s)

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DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
WASHINGTON, D.C., 20301, *1 December 1965*

TB 11–499–36/TO 31–3–28, Institute for Telecommunication Sciences and Aeronomy Ionospheric Predictions for March 1966, is published for the use of all concerned.

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NG: None.
USAR: None.
For explanation of abbreviations used, see AR 320–50.

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